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ORIGINAL ARTICLES.

A SIMPLE AND EFFICIENT TREATMENT OF TALIPES CALCANEUS PARALYTICUS IN YOUNG CHILDREN.[1]

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FOR a number of years in my own hands the treatment of calcaneus in young children was unsatisfactory, and my experience with the various mechanical devices had failed to convince me that one could reasonably expect a cure. The difficulty lay in the construction of an apparatus that would keep the foot fully extended at all times, without making such apparatus too cumbersome. The ordinary "reverse catch," which we have all had so much to do with, so frequently got out of order that I rather despaired of securing continuous extension, because time and again this catch would get out of order, the foot-plate would break, or the shoe bend at the sole, and the patient would come in walking on the heel. Even in the hospital where I was enabled to keep the appliance in reasonably good repair, it was exceedingly difficult to maintain continuous extension of the foot.

In thinking over the explanations given for the production of deformity in a paralyzed limb, I was convinced that long-continued position contributed largely to the shortening of a tendon in a paralyzed muscle. For instance: The ham strings would shorten, and even the muscles themselves about the hip would shorten. The writer has witnessed a number of cases in which flexion deformity existed and division of muscles or stretching was necessary before an apparatus for a paralyzed limb could be properly adjusted.

Case I.—In 1895, I had a little patient, eighteen months of age, whose parents wanted to spend the summer in Maine, and although they were supplied with two or three braces, the little fellow was so heavy that he would soon get them out of repair. I determined therefore to put his foot in extreme extension and maintain this position at all hazards; so I resorted to plaster-of-Paris. I explained to the parents fully the length of time which this plaster must be worn, and I provided a wedge-shaped piece of felting so that a shoe could be worn with comfort, thus enabling the patient to get about with a great amount of ease. The child had an attack of poliomyelitis in September, 1894. The lesion was not an extensive one, but there remained a paralysis of the gastrocnemius and of the posterior tibial groups. It was on June 27, 1895, that my first observation was made, and although I provided him with the appliance above named on November 6, 1895, I found that the calcaneus was even more marked, in fact, that the brace had done no good. I proposed an operation for shortening the tendo Achillis, but it was not accepted, and I determined, for the present, at least, to put him in plaster-of-Paris, which I did on November 9th. It remained unchanged until December 7th. The tendo Achillis was perceptibly shorter; there were no excoriations when the plaster was renewed. It was reapplied at once and removed again on January 23d. The tendo Achillis was decidedly shorter and the foot could be brought in dorsoflexion only to 90°. The plaster was renewed on May 2, 1896, and again on June 1st, no excoriations at any time having appeared. At this last date I made a removable cast which he wore to December, 1896.

A note which I made on November 2d reads to the effect that it was impossible to bring the foot in flexion to 90°. The tendo Achillis was not only short but quite strong. I made him an apparatus at this time to correct the valgus, hoping thereby to secure some shortening of the posterior tibial. From this time I had no further trouble with the calcaneus. The apparatus was worn without any great strain, and it was easy to keep it in repair. From January, 1897, to March, 1900, I saw him from time to time, resorting to various measures to improve the posterior tibial, but without much avail. He developed an equino valgus. Even without his apparatus he would walk, and yet the tendo Achillis would remain short. I determined, therefore, to do some tendon-grafting, and on March 30th I made a long incision in front of the ankle, toward the inner side, exposing the tendons of the posterior tibial, anterior tibial, the flexor brevis pollicis and the common extensors. I detached the flexor brevis pollicis from its insertion and some tendons of the common extensors, and passing these ends through the buttonhole in the posterior tibial, just in front of the malleolus, fastened them with fine silk. I then dragged over the larger portion of the common extensor to the inner side and tied these to the posterior tibial with kangaroo tendon. Even under an anesthetic I was unable to stretch the tendo Achillis so that the foot would stand at right angles with the leg. I did not care to divide the tendon, but thought at the next dressing or so I should be able to complete the extension. This proved true, and on April 12th, less than a month after the operation, I succeeded in stretching the tendon so that the foot was brought quite to 90°. It was interesting to note how strong and large

[1] Read before the American Orthopedic Association, Washington, May, 1900.

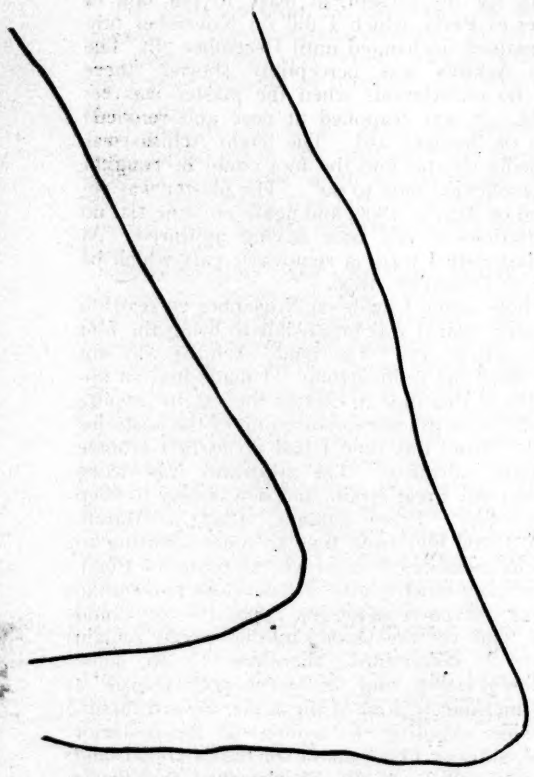
the tendo Achillis was. The result of the operation, thus far, is very good. The child has now practically a normal foot. He can make flexion and extension without this annoying eversion of the foot. I have no fear whatever of any trouble with the original deformity, *viz.*, calcaneus.

Case II.—A girl, five years of age, came under my observation on January 27, 1898. Her attack of poliomyelitis was in July of that year, but a marked atrophy and the deformity did not begin until some time in October or November. I found the tendo Achillis quite long. The foot and leg were cold, the child as she walked used the heel. I obtained such excellent results in the preceding case that I spent considerable time in explaining to the parents the necessity for the treatment I proposed to adopt. This was the plaster-of-Paris in complete extension and it was continued unremittingly, the plaster being changed every three or four months until the fall of 1899, over a year and a half. It was interesting to note the development of the tendon and even of the calf, in spite of the plaster-of-Paris. There was fully one inch difference at the time. Now there is scarcely half an inch. She is wearing a little ankle-support and has a foot that is just about normal.

There are still under treatment two unfinished cases, but the result is already apparent, and, from my experience with those just reported, I feel assured that the final results will be equally good.

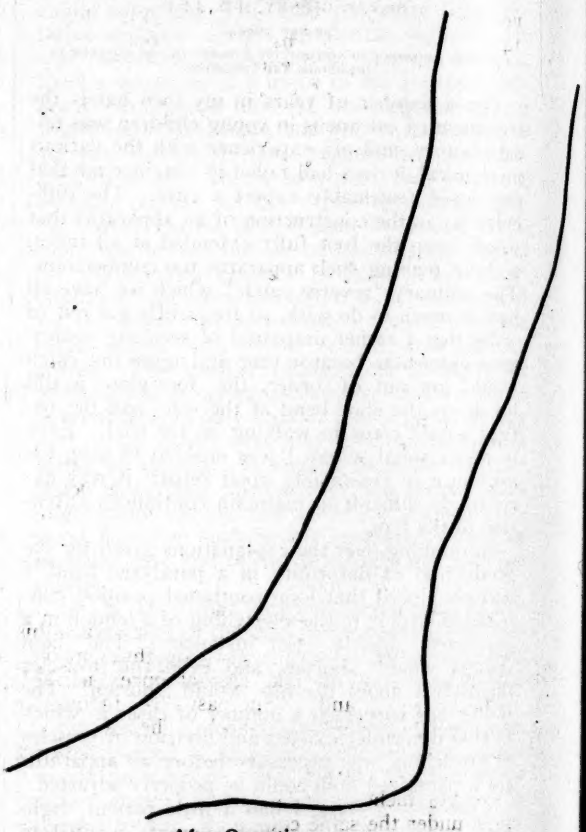
Case III.—This was a girl, three and a half years of age, from Cleveland, Ohio, whose poliomyelitis occurred when she was fifteen months of age. It was many weeks afterward before she was able to use the limb. When I saw her on March 16, 1899, she walked with a marked calcaneus limp, striking the heel first. The right limb from the anterior superior spinous process measured 17¾ inches, the left 18¼; from the umbilicus, right side, 19¼ inches; left, 20¼; thigh, 6 inches from the anterior superior spinous process, right side, 9¾; left, 10½. Right knee, 8; left, 8½; right calf, 6½; left, 7½. The foot was ½ inch shorter than its fellow and over the instep there was a difference of ¾ of an inch. The outline of the foot in March, 1899, is shown in Figure 1. On February 19, 1900, it was as shown in Figure 2. Figure 1 shows the position in which the foot naturally rested. Figure 2 was the best dorsoflexion I could make without the employment of great force. As she attempted to make dorsoflexion the great toe was drawn in, trigger toe,

FIG. 1.



Before Operation.

FIG. 2.



After Operation.

and she could not quite reach 90°. There was a little tilting of the pelvis, but no spinal curvature. The mother was very incredulous when I proposed the plaster-of-Paris treatment, and it was only after considerable argument that she consented to this treatment. She remained a few days in the city to see that the toes did not swell too much, and it was necessary to apply a second one before I got the toes and ball of the foot properly protected. The mother wrote me in June, but the letter was simply a record of the child's daily life; how well she got about and how little discomfort the plaster caused. I did not see her from March 21, 1899, until August 14th, nearly six months, when I removed the plaster, finding a little excoriation at the base of the toes, dorsal aspect, none elsewhere; the improvement was at least 50 per cent. The comparative measurements showed ½ inch increase in the length of the limb, no increase in the size of the thigh, a loss of ½ inch in the circumference of the calf. The plaster was reapplied, and on February 16, 1900, nearly a year from the beginning of treatment, the tendo Achillis was quite strong and the equinus had entirely disappeared. It was at this time that tracing No. 2 was taken. The thigh had increased a full ¼ of an inch, the calf remaining the same as in August. I decided to put on a third plaster bandage, which she is now wearing. I feel that I shall be able to omit all dressing of this kind during the early summer.

Case IV.—This was a boy, three and a half years of age, who came under my care October 17, 1899, with a marked calcaneus, his poliomyelitis developing in July, 1898. The fever was of sudden onset and it was eight or ten days before a diagnosis was made. The child screamed almost continuously, and it was found at the end of this period that his left leg was paralyzed, his right arm partially so. Two or three months later he began to walk. All at once the right arm recovered, and for the past three months he has been walking on his heel. The right ankle measured 8 inches, the left 7. The quadriceps extensor did not act well, while the thigh itself was 1½ inches smaller than its fellow. I put him under the same course of treatment and the plaster was removed for the first time on February 27, 1900. I found the gastrocnemius muscle very sensitive and it was difficult to extend the tendo Achillis. The position of the foot was excellent. The plaster was at once reapplied, and he is still under treatment.

These four cases are presented in evidence of the efficacy of prolonged and uninterrupted extension of the foot. I have not resorted to the method in the older patients, for the reason that it is difficult to keep plaster-of-Paris on a limb sufficiently long to secure a good position. I have not employed water-glass, nor have I attempted leather splints in these young children. I am now employing a leather splint reinforced by steel in front for an adult and it gives me much pleasure to add to this short paper and report an exceedingly interesting case of metatarsalgia, depending apparently on hysterical equinus, division of tendo Achillis, subsequent elongation of same, with a most persistent equinus resulting; finally relieved by prolonged extension.

Case V.—A lady, thirty-five years of age, came under my care September 29, 1896. She had suffered for a long time with metatarsalgia, and had been under the care of two distinguished surgeons in Philadelphia. At the time I saw her the pain was referred to the distal ends of the second and third metatarsal bones. There was a moderate amount of flatfoot, but the tendo Achillis was short and I could not flex the foot to 90°. There was no pain on pressure between the fourth and fifth metatarsals. I ordered a shoe built on a Spanish last, in order to correct the flatfoot, and I had the heels rather high, so that there would not be any strain on the tendo Achillis. Two months later the shoes were comfortable but there seemed to be too much pressure against the arch of the foot. She, herself, a trained nurse, had long since got the impression that her tendo Achillis was too short, so the latter part of December, 1896, she asked my permission to have a surgeon in a suburban town divide the tendon. I offered to make any suggestions to the surgeon if he so desired. A few days later, in response to a letter from this gentleman, I wrote him, giving in detail the steps of the operation, the subsequent management, etc. I insisted on a great amount of care in the management of the tendon, as I was afraid that she would abuse his treatment and get the tendon too long. On April 14, 1897, she reported herself perfectly free from her metatarsalgia, and gave this history: The operation had been done as instructed, the foot was put up in plaster-of-Paris, but she removed it in a few days "because of the development of gout." A brace was employed at this time and worn not very regularly. I found the tendon quite small. It was too long and there was a transverse depression into which one could put the finger, just near the point where the tendon joins the muscle. There was increased atrophy of the limb since the operation. I naturally felt that I could not be responsible for this condition, and advised that she keep the foot extended as much as possible and prevent dorsoflexion at any time. I saw very little of her during that year. On April 12, 1898, she told me that she had been very weak since the operation, and I found a very marked calcaneus; indeed, there was scarcely any of the tendon left. She had a good deal of spasm of the flexors of the toes and finally I urged the plaster-of-Paris with foot extended; in the meantime, however, I had a wedge-shaped piece of cork inserted in the heel of the shoe. Shortly afterward I applied a water-glass bandage, and while the water-glass was setting under the plaster, she became quite hysterical and the bandage had to be removed. On July 19th and 23d these were repeated with the same results, that is, great pain and objection to wearing any hard splint. It required a great

amount of persuasion to induce her to continue treatment of this kind. In August, 1898, there was evidence of increased growth of the tendon. I was obliged to employ a brace at this time, but under protest. On February 8, 1899, there was still a marked calcaneus, but she managed to get about fairly well with the apparatus. The toes annoyed her a good deal and on April 21, 1899, under ether, I divided the tendons of the flexor brevis pollicis and the common extensors, subcutaneously, and secured complete extension of the toes; in fact, brought them into flexion. The foot was likewise extended and plaster-of-Paris employed from the tips of the toes to the upper part of the calf, avoiding all pressure over the tendo Achillis. She was in hospital at this time and I could command better discipline. Within two or three weeks, however, she developed another hysterical attack. Her stomach "gave out" and I was obliged to resort to water-glass again, which she wore until August, 1899. Then I took a cast of her foot and had a leather splint made, reinforced well in front, with foot in pretty sharp extension. So the case progressed. My last observation was on March 23d of present year, and I found at this time a pretty strong tendo Achillis. In fact, it was just about normal. This depression had disappeared, and she was able to flex and extend the thigh with great ease. I saw her at this time in conjunction with Dr. Joseph Collins, who injected strychnine hypodermically into the calf muscles, as a remedy for her neurasthenia. The result on the whole, therefore, is excellent. It has been a most exasperating case in many respects, yet by persisting in the treatment I am able to report so favorably.

In conclusion, I may say that almost any appliance which is worn night and day, the management of which is taken completely out of the patient's hands, should bring about like results. My fondness for plaster-of-Paris has prejudiced me in its favor, and yet I can readily see how any other dressing which will meet the indications could be employed with equal advantage.

IN WHAT RELATION DOES OCCUPATION STAND TO TUBERCULOSIS?

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IN order to answer the above question, we have to examine statistics, a task undertaken by many persons before me. I am aware that statistics as a rule have only a certain value, and even those that are the most thorough and exact are not such that we can draw absolutely correct mathematical conclusions from them. Especially the publications of statistics regarding tuberculosis number many hundreds and I do not intend to mention them here. Some of them will be discussed later on. It is noticeable, however, that in former years great stress was laid upon nutrition as an etiological factor, but it is difficult to say how far insufficient nutrition has to do with tuberculosis. Still I am inclined for many reasons to believe that in the etiology of tuberculosis poor nutrition has little to do and is perhaps only one of a great many of the causes. One important reason is that we see quite a number of well-fed and well-nourished individuals suddenly show signs of tuberculosis. Further, it has been noticed that in people who have had a hereditary tendency tuberculosis appeared in spite of the fact that they were constantly fed with a great deal of meat and other nourishing substances.

On the other hand it cannot be denied that people with limited and very small incomes—as has been shown by Gebhard—are much more prone to tuberculosis than those of the wealthier classes. Gebhard has studied this question thoroughly and comes to the conclusion that his results were always the same, *viz.*, the lower the average yearly income the higher the rate of tuberculosis; and the higher the average income, the lower the mortality of this disease.

Very similar investigations have been made in Hamburg, and it was found that the mortality of tuberculosis was as follows: Among one thousand taxpayers with an income of more than 3500 marks, 1.07; with an income of 2000 to 3500 marks, 2.01; with an income of 1200 to 2000 marks, 2.64; with an income of 900 to 1200 marks, 3.93. We see, therefore, that here, too, mortality keeps step with the reduction of the income.

That there are many other factors which play an important rôle here is undoubted. Thus the greater density of the population in the poorer districts and with this the greater possibility of infection have been discussed thoroughly enough in this country.

More important, however, than anything else is the occupation of the individual. While I am aware that a great many investigations have been made in this direction, and by competent observers, we have to admit that the results contradict themselves very frequently and cannot be utilized for accurate statistics. For this and many other reasons I have investigated the last 1576 cases of tuberculosis treated at the Montefiore Home in New York, *i. e.*, all the tuberculous patients during the past ten years. Out of the 1576 cases there were 1152 males and 424 females, ranging in age from five to seventy-two years. Before giving you the exact dates of my investigations, I must remark that the number of female patients (424) is too small and the exact occupation of most of them is too uncertain to allow any approximate conclusions. Thus, for example, we only know that by far the greater majority of the married women (241) gave their occupation as housewives. This might mean a great deal as to our question, or nothing. The exact data not being obtainable we shall omit them in deducing our conclusions. Still you will allow me to give you all the statistics, including those of the females also, which latter might per-

haps be used for some reference in the future.

Males.—The number of males was 1152; these ranging in age from five to seventy-two years; of these 670 were married and 463 were single.

Occupations.—These were as follows: Tailors, 183; operators, 99; peddlers, 96; clerks, 54; pressers, 52; cigarmakers, 46; shoemakers, 30; cloakmakers, 30; painters, 27; furriers, 20; shirtmakers, 18; laborers, 12; capmakers, 13; cutters, 12; salesmen, 24; printers, 12; waiters, 11; tinsmiths, 11; agents, 13; school-boys, 10; bookkeepers, 10; merchants, 18, butchers, 9; barkeepers, 8; watchmakers, 8; carpenters, 8; bakers, 8; musicians, 7; machinists, 7; cooks, 7; drivers, 6; buttonhole makers, 6; paper box makers, 5; nurses, 5; photographers, 5; teachers, 6; conductors, 5; stand-keepers, 5; plush-case makers, 4; porters, 4; frame makers, 4; glass-blowers, 4; book binders, 4; barbers, 4; cigarette makers, 4; workers on brass, 3; druggists, 3; locksmiths, 3; store-keepers, 3; packers, 3; spinners, 3; pocket-book makers, 3; pearl button makers, 3; necktie makers, 3; weavers, 3; rubber goods makers, 3; dressers, 2; gardeners, 2; trunk makers, 2; brush makers, 2; glass cutters, 2; collectors, 2; compositors, 2; housekeepers, 2; hallboys, 2; workers on passementeries, 2; bookkeepers, 2; typesetters, 2; trimmers, 2; hotelkeepers, 2; spongers, 1; brushers, 1; glovemakers, 1; workers on silverware, 1; gasfitters, 1; overgaiters, 1; real estate business, 1; canvassers, 1; makers of fancy cases, 1; basketmakers, 1; bandagists, 1; gummakers, 1; papermakers, 1; springmakers, 1; artists, 1; diamond workers, 1; diamond polishers, 1; worker on novelties, 1; fishermen, 1; caterers, 1; superintendents, 1; booksellers, 1; coppersmiths, 1; cordmakers, 1; reporters, 1; signers 1; finishers, 1; founders, 1; upholsterers, 1; drummers, 1; shipping-clerk, 1; rag assorters, 1; messenger boys, 1; newspapers 7; paper hangers, 1; tanners, 1; keeper of baths, 1; telegraph operators, 1; auctioneers, 1; ironers, 1; bottlers, 1; hatmakers, 1; watchmen, 1; janitors, 1; workers in lead factories, 1; jewelers, 4; instrument makers, 1; blacksmiths, 1; electricians, 1.

Those not accounted for have no occupation indicated.

Females.—The total number of females was 424; these ranged in age from six to sixty-six years. Of this number 241 were married and 134 were single.

Occupations.—These were as follows: Servants, 27; housewives, 19; tailoring, 18; seamstresses, 9; necktiemakers, 7; salesladies, 6; shirtmakers, 6; schoolgirls, 5; operators, 5; cigarmakers, 4; workers on white goods, 3; hatmakers, 2; cooks, 2; finishers, 2; midwives, 1; flowermakers, 1; feathermakers, 1; trimmers, 1; workers on furs, 1; cigarettemakers, 1; dressers, 1; milliners, 1.

Those not accounted for have no occupation indicated.

There is one striking fact in looking over the above statistics, *viz.*, the extraordinary large number of tailors and those with similar occupations who were suffering from tuberculosis. Of course we have to take into consideration that the bulk of the inmates of the Montefiore Home is made up of Polish and Russian Jewish immigrants, who as a rule land in this country with very little or no means. They learn that trade which will yield them some income in the shortest possible time, *viz.*, tailoring, "operating," etc. To this trade they adhere until they get sick. You all know better than I am able to describe it the dreadful condition of the sweatshops in which these people are forced to work from ten to sixteen hours a day, and that in the worst imaginable atmosphere. I will only add that when these modern slaves come home from work they do not get into better surroundings. The atmosphere of their homes—if you can call such dungeons homes—is, if possible, worse than in the sweatshops. A small room inhabited by six to eight persons and used as kitchen, dining-room, bedroom, etc., with no direct light, almost entirely dark all day long in the rear of a tenement-house, is nothing unusual in the metropolis of the United States. The liberty of building such pestholes for the sole benefit of the owners of these houses has become one of the greatest crimes in New York City which, as yet, is not punishable by law. You will not be surprised, therefore, at the great number of such people who acquire consumption. If I only class the tailors, operators, pressers, cloakmakers, capmakers and cutters in one group, as they are the ones most subject to the sweatshop slavery, we have among 1152 male tuberculous patients not less than 389 of this class. In other words, more than one-third of all consumptives were tailors and workers in allied trades. If in general one-seventh of all deaths occur from tuberculosis, how is it that we have here more than one-third of all tuberculosis cases?

It is a well-known fact that tailors as a rule are more predisposed to tuberculosis than those in other vocations. This may be due to their bent position, lack of proper exercise and other causes. Even in the armies, as for example the German army, where more attention is paid to hygienic measures, the mortality-rate from tuberculosis of those men who do the tailoring work is, according to Schjerning, much higher than those who do active service. Still there is nowhere such an abnormal proportion as we find among the tailors in New York City. In studying this question we naturally have to ask for the reasons of such increased infection. The habitus, lack of exercise, bad ventilation, overwork, undernutrition and lack of all hygienic precautions, all tend to produce that condition *par excellence* for which Bouchardat has invented the genial name of "physiological misery." Perhaps this will lead us to understand the earlier periods of the tuberculous disease. I have expressed my opinion elsewhere that consumption is primarily a trophoneurotic affection of both a general and local nature. It is only later that an

invasion of the tubercle bacilli takes place. Some believe that the primary seat of this neurotic affection lies in the medulla oblongata with special implication of the vagus nuclei; Thomas J. Mays and others are convinced that phthisis is alone due to an affection of the vagi. This latter assertion cannot be perfectly correct, for only the trophic fibers are affected, while the pulmonary branches of the vagus carry motor, sensory and centripetal and centrifugal vasomotor fibers also. Strebel, for example, does not believe, and I agree with him there, that the trophic fibers of the vagus alone are affected, but that the nerve takes part in the general trophic insufficiency in the consumptive; that secondarily, perhaps, degenerations in the vagus and medulla may be seen is very plausible.

In this connection you will allow me to quote from an excellent article written some years ago by Dr. Solomon Solis-Cohen[1] of Philadelphia. His standpoint is somewhat similar to mine. He says: "That condition which makes the human tissues a receptive soil, a favorable culture medium for the tubercle bacillus; that condition which of old was called diathesis and now susceptibility, is itself a disease, a departure from the normal; and I believe it to be the most important element in the morbid complexus termed tuberculosis." This condition he calls with Jaccoud, hypotrophy, *i. e.*, defective nutrition. While the term hypotrophy characterizes quite well certain conditions of the prebacillary stage, it does not cover the whole ground. There must be present some *humoral* defect, or insufficiency, in the tissues of the organism, which as yet has not been demonstrated in the blood circulation but of which I have no doubt we shall hear more in the future. Thus far nothing has been published that could give us any satisfactory evidence about this lack of good circulation, but nevertheless it does exist. When such a person with trophic and circulatory insufficiency, as I might call it, develops in any part of the body favorable conditions for the development of microbes, we are sure that tubercle bacilli will flourish here and a local and afterward a general infection is bound to take place. I have demonstrated this for the retropharynx and believe that in many cases the primary infection takes place there, a belief that was confirmed by prominent men here and abroad, as for example, Prof. Chiari of Vienna, Prof. Seifert of Würzburg, and many others. Dr. Solis-Cohen is not of the opinion that the tubercle bacillus of itself originates the disease, "while it is perhaps the most important of several microbes that influence the progress of the lesions in various forms of the disease." This idea of Dr. Cohen's which seems to be spreading here and abroad seems not to be perfectly correct. While I have always admitted that there must be something else besides the tubercle bacilli to produce the disease, I have shown in the above experiments that tuberculosis does develop when once the tubercle bacilli find a fertile soil to thrive in, be this primarily in the retropharynx or at any other part, which was temporarily the *locus minimae resistantiae*.

Let us apply this to our tailors and we see the following: For years and years numbers of these men come to my throat department for treatment. Their complaints are so uniform and so characteristic that I need not ask them for their occupation; I know they are tailors. They all have a more or less dry, atrophic condition of the mucous membranes in the nose and throat, and they all have a postnasal catarrh. That this catarrh with its stagnating, adhesive, dried secretion which lies at the retropharynx for weeks, is the best culture medium for the tubercle bacillus I have shown elsewhere. I will only repeat here that I have seen tuberculous ulcerations develop at this place, thus proving, as I believe, that there was an open door for the invasion, settlement and development of the tubercle bacilli. How general tuberculosis develops from this spot and spreads to the lungs, etc., as well as for other details, I have to refer to my article.[1]

On the other hand, I have examined 75 consumptives at random. Of these 37 did not complain at all of their throat or nose and 38 did, *i. e.*, about half on each side. Of the 37 patients who did not complain not less than 23 showed marked abnormalities in their nasal passages and in only 14 were there no marked changes at all. Although these examinations are not extensive, I am sure that they will prove convincingly that consumptives suffer from nose and throat troubles not only as much as but more than other people. Two-thirds of those who did not complain had some kind of affection of the throat or nose, and naturally the others who did complain showed lesions of the parts also.

In conclusion I will say that in this paper I had to limit myself to almost one sort of occupation, but it will readily be seen that this one is only a prototype of many others living under similar conditions, and my general conclusion is in accordance with Flint's, "that occupation has an agency in the etiology of pulmonary tuberculosis, in so far as it is sedentary and involves confinement within doors. If it be said that this conclusion is in accordance with what is already known, I answer, that the correctness of the conclusion is thereby made the more certain."

New York Board of Health and Plague.—Michael C. Murphy, President of the Board of Health of the City of New York, has given out some of the preliminary plans for a new bacterial laboratory for the municipality. It is to be a one-story building, built according to the best models and is to be devoted solely to the investigation of the bacillus of the plague. It is to be situated somewhere near the Willard Parker Hospital.

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[1] Tuberculosis, Vol. I., Hare's System of Therapeutics, 1890.

[1] Kleinere Beiträge zur Aetiologie der Lungentuberkulose. *Archiv für Laryngologie*, Bd. V., 1896. *Annals of Otology*, February, 1897.

MULTIPLE TRAUMATIC HEMORRHAGES OF THE LIVER ASSOCIATED WITH MULTIPLE PULMONARY EMBOLI OF LIVER-CELLS AND GIANT CELLS RESEMBLING BONE-MARROW CELLS.[1]

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THE microscopical appearances in trauma of the liver have been but rarely the object of pathological investigation, and only within recent years has it been shown that as a result of injuries to this organ its parenchymatous cells may be set free into the blood-stream, and through metastasis lead to the formation of liver-cell emboli in the blood-vessels of the lungs.

Turner in 1884 was the first to observe free liver-cells lying within the hepatic vessels, and to draw an analogy between this occurrence and that of fat-embolism. In 1886 he saw two other cases of a similar condition, and following him Jürgens, v. Recklinghausen, Schmorl, v. Zenker, Pilliet, Prutz, Klebs, Hess, Lubarsch and Flexner have reported observations of the metastasis of liver-cells and the formation of liver-cell emboli in the pulmonary vessels. Retrograde metastasis of these cells into the cerebral and renal veins has been seen by Schmorl and Lubarsch, and the same observers have also seen a paradoxical metastasis of liver-cells in cases of patent foramen ovale. In these the liver-cells were found in the capillaries of the brain, kidneys, and other organs, while emboli of the same cells were found blocking the foramen.

The pathological conditions associated with or leading to this metastasis have been as follows: Traumatic rupture and laceration of the liver, hemorrhage and necrosis of the organ in eclampsia, sepsis, acute yellow atrophy, abscess, gumma, scarlet fever, chorea and delirium tremens. In the cases of traumatism large masses of hepatic tissue have been found plugging the larger branches of the pulmonary arteries. The more severe the injury to the liver the larger and more numerous are the emboli found in the lung. In eclampsia, sepsis, etc., the transported cells are usually single or in small groups. No evidence of proliferation in the cells thus misplaced has been observed. Both observation and experiment show that they undergo an early necrosis.

In intimate association with the development of our knowledge concerning liver-cell embolism has been that of the general theory of parenchymatous cell-metastasis. Emboli of placental cells in the pulmonary capillaries were discovered by Schmorl in 1893 to occur in cases of puerperal eclampsia, and especial significance was attached by him to their presence as having a causal relation to the condition or to some of its important symptoms. It has since been found that these emboli, while frequent, are not constant in this disease, and they have been shown to occur in pregnant women without eclampsia (Lubarsch, Leusden, Kassjanow). Doubt as to the placental origin of these cells has also been raised by Aschoff who found similar cells in many widely-varying conditions.

Almost coincidentally with Schmorl's discovery Lubarsch observed large giant cells in the pulmonary capillaries which he regarded as bone-marrow cells. Similar findings were soon after reported by Aschoff and later by Maximow. Aschoff, however, is in doubt as to the origin of these giant cells. Having found them in two cases of eclampsia he considers the possibility of their identity with the cells described by Schmorl, and since he found the same cells in cases of erysipelas, pneumonia, diphtheria, cholera, carcinoma, leukemia, peritonitis, burns of skin, fractures, etc., he rejects the assumption that they are of placental origin, and considers them as being most probably bone-marrow cells. Lubarsch in reply to Aschoff holds that the cells described by the latter are not identical with the bone-marrow cells observed by him, nor with the placental cells of Schmorl. The questions raised by Aschoff remain at the present time unsettled, and the origin of these cells has not yet been definitely proved.

Pulmonary emboli of kidney-cells have also been described by Schmorl, but these have been shown to be undoubted artefacts. Further, portions of bone and medullary substance have been found in the pulmonary capillaries, and Welch has noted the presence of "splenic" giant cells in the liver-capillaries. Our present knowledge of parenchymatous cell-metastasis is, therefore, limited to that of hepatic tissue, bone-tissues, and certain large poly- or mononuclear giant cells which are thought to be either placental cells, splenic or bone-marrow cells.

The case which I report in this paper is of interest as being an addition to the small series of cases of liver-cell embolism already described, and also because of the occurrence of multiple pulmonary emboli of giant cells similar to those observed by Schmorl, Lubarsch and Aschoff. The case is from the surgical clinic of Dr. Nancrede.

Wm. G., aged twenty-four years, an unmarried farm-hand living in the country near Ann Arbor, was brought to the University Hospital on the morning of August 18, 1899. He had fallen from a beam in the barn where he had been working, and had alighted upon the upright handle of a pitchfork which had entered his perineum to the left of the anus. The force of the fall had been so great that the handle had been driven upward into the body to a distance of twelve or more inches, "as far as his stomach." The injured man had withdrawn the handle before his condition was discovered.

The patient when brought to the hospital was suffering from shock and his condition was so serious that a diagnosis of severe laceration of the intestines was made and he was at once operated upon by Dr. Nancrede and Dr. Darling. A median incision was made below the umbilicus.

[1] From the Pathological Laboratory of the University of Michigan, Ann Arbor.

Free fecal matter was found in the abdominal cavity. The intestines were very hyperemic and showed five or six distinct bruises in different portions. Two areas were so badly crushed that they appeared almost gangrenous. These were situated in the transverse colon and in the lower portion of the ileum. Blood-clots and fecal matter were found in the pelvis, the pelvic peritoneum was badly torn and bruised and the retroperitoneal tissues infiltrated with blood. In the anterior wall of the rectum, about three inches above the anus, there was an elliptical, ragged tear about three or four inches in circumference. The edges of the wound were covered with fecal matter which also protruded from the opening. Just above the anus a second laceration of the rectum was found, communicating directly with the external wound found in the perineum to the left of the anus. From the position of these wounds it seemed evident that the pitchfork handle passed through the perineum and the rectal wall just above the anus, then obliquely upward across the rectum, through its wall higher up, then through the floor of the pelvis toward the abdominal cavity where, glancing from the brim of the pelvis, it caught the intestines, pushing them violently upward toward the diaphragm. The tissues about the brim of the pelvis were bruised and infiltrated with blood. No marks of injury to the liver or stomach were noticed. The free fecal matter in the peritoneal cavity came entirely from the tear in the rectum.

The injury to the intestine was so widespread and so severe that resection of the damaged loops was considered to be out of the question and an unfavorable prognosis was given. The serous surfaces of the most severely injured portions were approximated, the abdomen washed out, drainage-tube and gauze inserted in the rectal wounds and the abdomen closed. The patient did not recover wholly from the shock, developed a general peritonitis, and died three days later.

The autopsy was conducted by me in the pathological laboratory one hour after death. The following notes are taken in condensed form from the laboratory protocol. Owing to the limited time for making the autopsy the organs were not weighed or measured.

Autopsy-protocol.—Body of rather slender build, well-formed. The musculature is fair and in good condition; there is a moderate amount of panniculus. There is no edema. There are pale hypostatic patches over the back. *Rigor mortis* is present only in the muscles of eyes and jaw. Body-heat is present.

There is a recent laparotomy-wound in the median line below the umbilicus covered with surgical dressings. On removing these a clean wound with adherent edges and stitches in position is seen. On separating edges of wound no pus is found. In the perineum on the left side of the anus there is a ragged, irregular opening containing drainage-tube and gauze. On removing these an opening about three inches in circumference is found, its walls ragged, greenish-gray in color and covered with dark-colored pus.

The abdomen is opened by an incision to the right of the median line. The peritoneal cavity contains a small amount of fluid which is cloudy and hemorrhagic and contains fibrin-masses and a few small bits of fecal matter. The coils of intestines are adherent and covered by a fresh fibrinous exudate which is partly hemorrhagic and partly greenish-gray in color. At the site of the laparotomy-wound the intestines and omentum are adherent to the anterior abdominal wall by strings of fibrin which are easily separated. The omentum is partly rolled up, very much thickened, hyperemic, and adherent to the peritoneum about the edges of the laparotomy-wound.

The serosa of the intestines is swollen, partly red and partly gray in color, and covered with a thick layer of fibrin. Five or six loops of the small intestine and the middle portion of the transverse colon are gangrenous. In two of these gangrenous loops the intestinal wall had been folded in, the serous coats approximated by means of sutures which are still in position. No perforation in the intestinal wall can be found in any portion, although the gangrenous areas are very soft and friable. The mesentery corresponding to these gangrenous loops shows distinct evidence of bruising. It contains numerous extravasations. The serosa of the appendix is slightly swollen and covered with fibrin.

There is a large retroperitoneal extravasation about the brim of the pelvis, most marked at the bifurcation of the abdominal aorta. The wall of this vessel shows a number of small hemorrhages. The floor of the pelvis is covered with a thick layer of fibrin, and shows also a diffuse purulent infiltration. In the wall of the rectum there is a ragged tear, the edges of which are covered with foul greenish-gray pus. Small collections of pus are found in the surrounding tissue.

On opening the intestines, the mucosa of the jejunum, ileum and transverse colon shows dark-green, softened and friable areas corresponding to those already described. In the rectum are two irregular perforations, one just above the anus, communicating with the external wound; the other is in the anterior wall diagonally opposite, three inches higher up. The mucosa of the rectum is deep-red in color, about the perforations it is grayish-green and swollen. The upper tear is elliptical in shape, about four inches in circumference, its edges are ragged and gangrenous. The fat-tissue about the rectum is hemorrhagic and contains small collections of pus.

Stomach.—Along the greater curvature and over the anterior wall there are small scattered hemorrhages. The serosa is thickened. Otherwise it appears normal. The *spleen* is moderately enlarged, soft and hyperemic. The examination of the *adrenals, kidneys,* and *pancreas* is negative.

Liver.—This is much swollen, its edges rounded and the anteroposterior diameter much

increased. The capsule is covered with patches of fibrin. Beneath it there are numerous irregular, dark-red areas, from one to three cms. in diameter. There are also a few yellowish areas of same size and shape which are surrounded by a hemorrhagic zone. On section the cut surface shows many minute lacerations of the liver-substance which are filled with coagulated blood. These are most numerous near the capsule and toward the lower edge of the organ. In almost every instance the hemorrhage arises from the smaller branches of the portal, the walls of which show numerous small tears. Both the hepatic and portal branches contain clots, some of which are quite firm. The larger hemorrhagic areas involve several lobules and extend into the intralobular veins. Immediately around the hemorrhages there is a yellowish, softened zone. The consistency of the organ as a whole is decreased, and the parenchyma is cloudy and of a pale-yellow color. No large rupture of the organ is found, and the external surface shows no marks of direct injury.

The examination of the *genital organs* is negative. The *head* and *spinal cord* were not examined. The *thyroid* is slightly enlarged; otherwise the examination of the neck-organs is negative. The *heart* presents no pathological appearances.

Lungs.—The pleuræ are slightly cloudy and are covered with a fine layer of fibrin. There is a small amount of cloudy fluid in each cavity. Numerous dark-red areas are seen beneath the pleura. These are of firm consistency. On section the parenchyma is very hyperemic and contains many fresh hemorrhagic infarcts. These are for the greater part small in size and are most numerous just beneath the pleura, although occurring throughout the lung. An abundant foamy fluid is obtained on slight pressure. Numerous small, firm thrombi are found in the smaller branches of the pulmonary arteries. These are most numerous in the right lung. There are also firm clots in some of the larger branches of the pulmonary artery and veins.

Microscopical Appearances.—Material was taken from all of the organs and fixed in alcohol and bichloride of mercury. Portions of the lungs, kidneys and liver were also fixed in Flemming's solution, because of the suspicion that fatty embolism might be present. Besides the staining methods commonly used, polychrome methylene blue, Ehrlich's triacid, etc., were employed as specific stains in the study of the giant cells found in the pulmonary capillaries. The interest of the microscopical examination centers about the liver and lung.

Liver.—The sections of the liver show hemorrhages of various sizes. The liver-lobules are torn apart by extravasations which in almost every case can be seen to come from ruptures in the walls of the portal branches. The larger extravasations involve several lobules, and in some cases extend into the central vein, the walls of which are torn. The liver-cells bordering upon the extravasation are necrosed, their nuclei partially or entirely gone, their protoplasm granular and staining deep pink with eosin. In many cases portions of liver-rods lie in the extravasations separated from the remaining portion of the lobule by blood and fibrin-masses. The liver-cells are necrosed, but the outline of the liver-rods is preserved and the nuclei of the endothelium still stain. Single necrosed liver-cells lie also scattered and in small groups throughout the extravasations and in the hepatic vessels. These cells can be told only by their size, irregular outline, and their granular, deeply-staining protoplasm, as their nuclei are entirely gone. Around these necrosed cells are masses of hyaline and fibrogranular fibrin. In the sections stained with Weigert's fibrin-stain all of the fibrin stains violet and can be seen completely surrounding the necrosed cells. Fibrillæ of fibrin are also seen attached to and apparently arising from single dead cells. Desquamated and necrosing endothelial cells are also found in the blood-clots of the extravasations, but may be distinguished from the dead, loosened liver-cells by the fact that the latter differ in size and shape, stain more deeply red and are more granular.

Throughout the blood-clots of the extravasations and also in the hepatic veins there are numerous irregular, faintly-outlined, granular masses staining a faint dull pink with eosin, and possessing a slightly yellowish tint. The majority have no vestiges of nuclei remaining, but in sections stained with alum-carmine faint nuclei may be made out in some of them. They do not stain with Weigert's fibrin-stain. They are undoubtedly dead cells, and as all stages of disintegration exist between these and the recognizable liver-cells it may be safely inferred that they are liver-cells far advanced in necrosis and liquefaction. All of the vessels of the liver are congested, and both portal and hepatic branches contain thrombi in which liver-cells as described are found. No fatty embolism is present. The yellowish areas around the hemorrhages consist of necrosing liver-tissues, and the parenchyma of the organ shows throughout a moderate degree of cloudy swelling.

Lung.—All of the smaller pulmonary arteries contain thrombi which either partially or completely obturate the vessel. In these thrombi are found the same faintly-outlined, granular, eosin-staining masses which are present in the liver-vessels and which in that organ were shown without doubt to be liver-cells. These cells are free or scattered in small groups throughout the fibrin-masses of the thrombi and do not stain with Weigert's fibrin-stain. They cannot be blood-plates, fibrin, necrosing endothelium, or degenerating leucocytes, but from their resemblance to the dead liver-cells found in the hepatic vessels must be necrotic liver-cells. This view is further conclusively proved by the discovery of one small portion of liver-lobule in which the outline of the liver-rods is preserved and the nuclei of the endothelium still stain. I am un-

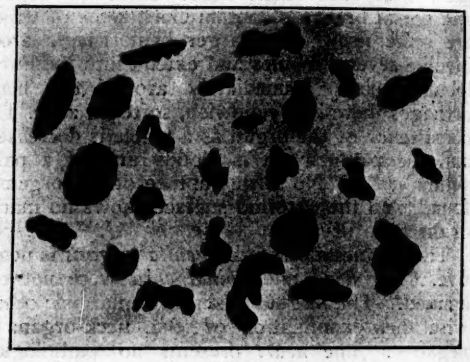
able to find any remains of liver-cells in the lung-capillaries.

A low-power survey of sections taken from any part of the lung shows in the capillaries of the alveolar walls and in the smaller arterioles deeply-staining masses of chromatin, some appearing almost black. They are very irregular in size and shape, but for the greater part are elongated. There is an evident distention or bulging of the capillary at the point where these masses are found. Three to six may be found in some low-power fields. Under the high power these dark masses are seen to be the deeply-staining nuclei of giant cells which are blocking the lumen of the smaller capillaries. These cells are for the greater part mononuclear, but a number of multinuclear ones are found. In the majority of cases no cell-protoplasm can be made out; the cell-nucleus is pushed into the lumen of the capillary and stretched out into a great variety of forms, club, knob-shaped and nodular masses of a coarsely-granular chromatin. In other cases a faintly-staining (with hematoxylin) protoplasm is made out, while in the free giant cells found in the lumina of the large arterioles, which lumina they do not fill, a hyaline plasmodial protoplasm is found. In these conditions the size and shape of these giant cells are easily studied since they are not affected by pressure or crowding. Only a few of these were found, the majority of the giant cells being pushed into the small capillaries.

The further study of these new cells shows them to be very large with a considerable amount of a plasmodial protoplasm resembling that of the syncytial cells of the chorion. This tinges with either hematoxylin or eosin, but more heavily with the former. With alum-carmine it appears light brownish. The cells are either mono- or multinuclear, in the latter case the deeply-staining nuclei are clustered in the central portion of the cell or at the periphery. The size of the chromatin masses blocking the capillaries varies greatly (about 12-16 microns in width and 30-100 microns in length). The free cells in the larger vessels are oval or round, of the size of bone-marrow and placental giant cells, and correspond to these in all respects. The variations in size and form of the capillary emboli are due to the shape of the vessel and the manner in which the cell is crowded into them. The nucleus is drawn and bent according to the windings of the capillary. The fact that the protoplasm cannot be seen in many instances may be explained by the possibility of its having been pushed off from the nucleus as the cell was crowded into the narrow lumen of the capillary.

No granulation can be brought out in the protoplasm by staining with Ehrlich's triacid or Unna's polychrome methylene blue. In this respect the cells resemble the giant cells of the bone-marrow, spleen and placenta. In the sections stained with polychrome methylene blue the body of the nucleus appears as a highly refractive hyaline body on the surface of which lie the granules of deeply-stained chromatin. In a few cells small skeins of chromatin granules project out into the cell-protoplasm. This may be taken as evidence of beginning degeneration, but no other signs of retrograde changes could be found. The nuclei of all the giant cells found are stained very deeply, and no fragmentation or diffusion of the chromatin could be found. No evidences of coagulation processes in association with these cells were found.

FIG. 1.



Forms of giant cells found in the pulmonary vessels. The large cells, showing definite cell-body, are from the small arterioles; the irregular nuclear forms with little or no protoplasm are from the capillaries. Leitz Obj. 7, No. 2. Eyepiece. Camera-lucida drawing. Reduced to two-thirds.

In addition to these changes the lungs showed extreme congestion and edema, and small hemorrhagic infarcts in great number. There were also numerous areas of beginning bronchopneumonia.

The microscopical examination of the other organs showed a universal congestion. No giant cells were found elsewhere, although especial search was made for them in the spleen, liver and kidneys. In the material fixed in Flemming's solution no fatty embolism was found and no evidence of cell-division in the giant cells just described.

At the time of discovery of these giant cells I was struck with the resemblance between them and the cells which had been pointed out to me as placental cells in the lung-capillaries while working in Schmorl's laboratory in Dresden two years ago. Fortunately, in addition to mounted specimens of eclampsia brought from that laboratory containing pulmonary emboli of giant cells which had been demonstrated to me as placental cells, I had brought back a number of paraffin-blocks from two cases of eclampsia which were said to contain these emboli in large numbers. On comparing the sections of the lungs from these cases of eclampsia with those from the case just described, I am unable to make out any difference between the "placental cells" and the giant cells found in my case. Dr.

Dock, to whom I have shown the specimens, agrees with me as to the similarity of the cells found in the two conditions. I have further been unable by means of any special staining, glycogen-test, etc., to make any differential diagnosis between them. The multinuclear cells are more abundant in the eclampsia cases, but no structural differences exist between them and those just described.

The giant cells in my case are *not* placental cells, and they cannot be distinguished from the cells in cases of eclampsia which have been called placental cells; therefore, the doubt naturally arises as to the true source of the cells found in the eclampsia cases. Are they not the same cells as those found by Aschoff, Lubarsch and myself, and have they not the same source of origin? I am able not only to confirm Aschoff's doubt as to the placental origin of these cells, but to refute the criticism of Lubarsch that the cells seen by Aschoff were not similar to those found by Schmorl in eclampsia. The description and illustrations given by Aschoff coincide perfectly with some of the appearances found in my case; and Schmorl's descriptions of the placental cells and Lubarsch's of the bone-marrow cells likewise apply to cells found in this case. Further the cells in specimens of eclampsia from Schmorl's laboratory are so similar that no differential diagnosis can be made between them. Likewise the giant cells found by Leusden in the lung-capillaries in two cases of eclampsia and in two cases of pregnancy without eclampsia correspond to these.

While I am far from denying the possibility of the cells in the eclampsia cases being placental cells and while I am willing to concede that they are, I am in a position to affirm that we have as yet no means of distinguishing them from the giant cells found in the lung capillaries in other conditions in which no placental cells can exist, and that the diagnosis of placental-cell emboli rests at present upon no certain basis. Where villi or portions of villi or decidua pass into the circulation there can, of course, be no doubt as to the origin, but in the case of single giant cells there are no peculiarities of size, form, nucleus or staining that will differentiate placental cells and the other giant cells found in the lung capillaries. The descriptions of Schmorl, Lubarsch, Leusden, Kassjanow and Maximow, respectively, may be applied to cells found in my case.

That the periplacental giant cells may be set free into the circulation by means of direct force exerted upon the uterus (kneading, etc.) Maximow has shown by many experiments made upon pregnant rabbits. In animals whose pregnancy ran a normal course he was unable to find such placental-cell emboli. In the cases where the uterus was subjected to direct injury he found that the placental-cell emboli were not the plasmodial cells of the syncytium, but only the periplacental giant cells and the glycogen-cells of the decidua were set free into the blood-stream and carried to the lungs. There is no reason to doubt the possibility of such an occurrence in the human subject, but the question arises as to the possibility of identification of these cells after their metastasis into the lung-capillaries. If the cells in the two cases of eclampsia which I have studied are decidual cells, then I must hold that this possibility is very slight or with the present technical methods does not exist. It is, of course, possible that these cases of eclampsia are not typical ones and that the cells are not characteristic, but I am unable to find in the various descriptions of the placental-cell emboli any points which will differentiate these from the cells found in my case. Further, the study of sections of the placenta and uterus-wall containing numerous periplacental giant cells shows that many of these resemble the giant cells in my case, and I must confess my inability to distinguish between them. They have no peculiarities of morphology, and the glycogen-test is too unreliable to be used as a differential point.

The question of placental-cell embolism has at the present time about the following status. Schmorl holds that the metastasis of placental cells into the pulmonary vessels occurs only in eclampsia and bears a direct etiological relation to this condition. According to his view the presence of the placental cells in the capillaries of the lung leads to extensive coagulation and thrombosis which he regards as being the direct cause of the more striking phenomena of eclampsia. The constant presence of placental-cell emboli in eclampsia is confirmed by Lubarsch, who found them also in a case of chorea gravidarum without eclampsia; therefore, he holds that these emboli are not the cause but the result of the convulsions of eclampsia. Lubarsch further combats Schmorl's theory by the statement that liver-cell emboli lead to much more extensive thrombosis of the pulmonary capillaries than those of placental cells, but that the former is unaccompanied by eclampsia-like phenomena. Leusden found placental-cell emboli in two cases of eclampsia and also in a case of phthisis dying a few days after delivery and in a case of puerperal sepsis in which death occurred eight days after delivery, both of the latter having no eclamptic symptoms. He therefore holds that placental-cell metastasis is accidental and irrelevant and occurs in puerperal conditions other than eclampsia and will probably be found in normal cases of pregnancy. His lack of material prevented his confirming this hypothesis.

In 1896 Kassjanow published the results of numerous investigations upon the lungs of women dying an accidental death during pregnancy and the puerperium, but who had not suffered from eclampsia. In all cases he found in the pulmonary capillaries emboli of multinuclear giant cells resembling those of the syncytium and corresponding in all respects to the cells described by Schmorl; and he therefore

came to the conclusion that placental-cell embolism is a physiological process and may be found in every pregnancy.

In 1898 Maximow published an account of experiments made upon animals in order to determine if the metastasis of placental cells was a physiological or pathological process. As a result of the thorough examination of the lungs taken from forty rabbits killed in different stages of pregnancy he found no placental cells in the blood or in the pulmonary vessels. In animals in the latter half of pregnancy where direct force was exerted upon the uterus just before the animal was killed, he found periplacental or decidual giant cells in the lung-capillaries, but only in one case a single cell which he thought might be a syncytial cell. In the early stages of pregnancy such embolism was not produced, and he explains this by the fact that the periplacental cells do not exist at that time. In the lungs of normal rabbits, male and female, pregnant and non-pregnant, he also found giant cells which he says have no resemblance to the placental cells; but unfortunately he does not point out the differences between them, and calls them bone-marrow cells without giving any adequate differential diagnosis. From his experiments he concludes that placental-cell embolism is not physiological in the rabbit but may be produced by direct injury to the uterus and its contents, and that the cells set free are not the syncytial cells, as claimed by Schmorl to form the emboli in the human subject, but are the periplacental cells and the glycogen-cells from the decidua.

It will be seen from the above that the status of placental-cell embolism is still very uncertain and that the questions concerning the origin and significance of the process remain yet to be settled. The study of the small amount of literature upon the subject shows that even among these original investigators there is a confusion as to the exact nature of the placental cell. For example, Schmorl describes a case of placental-cell embolism in a pregnant rabbit dying suddenly with symptoms of eclampsia. Maximow advances the proposition that the giant cells seen in this case were not placental cells but bone-marrow cells. Certainly if any one was qualified to distinguish between placental and bone-marrow cells it might be supposed to be Schmorl. Further, Maximow claims that the cells seen by Leusden in his cases of phthisis and puerperal sepsis are not placental cells but bone-marrow cells similar to those seen by Aschoff, but he accepts Leusden's statement that the emboli found in his two cases of eclampsia are composed of placental cells. According to the description given by Leusden the cells in all four cases are the same. As stated in the introduction to this paper, Aschoff who found giant cells of the same kind in eclampsia and in many widely-varying conditions concludes that they are all of bone-marrow origin, while Lubarsch, the original investigator of bone-marrow-cell embolism, claims that Aschoff's cells are not the bone-marrow cells seen by him and that they differ from the placental-cells of Schmorl. He makes this statement, however, without the support of any differential diagnosis.

We must, therefore, conclude that the variety of giant cells found as emboli in the lung-capillaries in different conditions is sufficiently great to cause confusion, and that these various kinds have not yet been so differentiated and described that their identification rests upon a secure basis.

An examination of the lung-sections taken from the last twenty-five autopsies made in this laboratory shows the presence of pulmonary emboli of giant cells in four cases. These are; (1) Fatal anemia (epistaxis); (2) leukemia with acute miliary tuberculosis; (3) pernicious anemia with melanoderma and vitiligo; (4) splenic anemia (splenectomy).

In the first case the giant cells were found in the lungs, liver, spleen, kidneys and lymph-glands. In the second case they occurred in the capillaries of the lungs and kidneys; in the case of pernicious anemia in the lungs and spleen. In the fourth case the spleen was removed three days before death and portions of the organ were taken at the time of the operation for microscopical examination. These show the presence in the blood-spaces of the pulp of many multinuclear and mononuclear giant cells. Sections of the lung and liver prepared from material taken at the autopsy three days after the splenectomy showed numerous capillary emboli of giant cells similar to those found in the spleen. While the giant cells in these four cases have not been as thoroughly studied as in the case of rupture of the liver, yet in all respects with the ordinary stains they appear to be identical with those found in that case and in the eclampsia specimens obtained from Schmorl's laboratory. From their morphological appearances it would be impossible to ascribe to them a different origin.

The question then arises as to the origin of these cells. In none of my cases can they be placental cells, and the bone-marrow, spleen or lymphatic-glands must be taken as the most probable source from which the metastasis arises. Lubarsch came to the conclusion that the giant cells found by him in the lung-capillaries in a case of resection of the hip-joint and in tuberculosis osteomyelitis were of bone-marrow origin; likewise Aschoff excluded other sources of origin for the giant cells observed by him in so many widely-varying affections. This view was also supported by Arnold. Finally, Maximow showed by experiments upon animals that not only single bone-marrow cells, but also portions of the marrow and osseous tissue could be set free by trauma and carried to the lungs. Lubarsch explained the metastasis in his cases by the setting-free of the cells from the marrow-matrix by the trauma caused by operations and also through destructive inflammations of the

bone and bone-marrow. Aschoff came to the conclusion that in his cases the metastasis was due, not to the effects of direct mechanical injury to the bones or to disturbances of blood-pressure, but to chemotaxis brought about by the appearance in the blood of substances causing an emigration of the giant cells from the marrow into the blood-stream. Since he found the giant cells in the pulmonary capillaries in a healthy individual dying suddenly from accidental causes, he came further to the opinion that there may be a physiological leucocytosis of the marrow-cells into the blood.

Arnold confirmed the metastasis of the bone-marrow cells as a result of injury to the bones, but found that it also took place in other conditions where mechanical force played no part, as in artificial dyspnea. He was led to believe that an emigration of these cells took place under certain conditions in which the cells may play the rôle of phagocytes. Maximow's experiments with animals were carried out for the definite purpose of settling the question as to the pathological or physiological nature of the metastasis of the giant cells of the marrow. He arrived at the conclusion that after direct injury to the bones both normal and degenerating bone-marrow giant cells appeared in the circulation, the latter in much greater numbers. He considered the absence of the cell-protoplasm from the nuclei of the giant cells found in the lung-capillaries as an evidence of degeneration, and not, as Aschoff thought, to be due to the slipping-off of the protoplasm as the cell was crowded into the narrow capillary. He further claims that normal giant cells of the marrow are never found in the lung capillaries of animals in whom no direct injury to the bone-marrow is produced, that in these cases only the degenerated forms appear, since these isolate themselves from the tissue of the marrow and pass into the marrow-capillaries whence they are carried out into the general circulation. Maximow found also that the number of these degenerating giant cells in the bone-marrow was greatly increased in the marrow of pregnant rabbits, and for this reason he explains the more frequent occurrence of their metastasis into the lungs of pregnant animals. Lubarsch in reply to Maximow affirms that marrow-cells may pass into the circulation without injury to the marrow; and that in all cases of liver-cell or placental-cell embolism there is a secondary embolism of marrow giant cells which greatly increases the difficulty of differential diagnosis. The differential points he does not give.

I cannot accept Maximow's conclusions in so far as the appearances in the human body are concerned. In all of my cases giant cells showing a well-preserved cell-body were found, and the nuclei of these cells showed the same staining properties as did those of the cells possessing no protoplasmic cell-body. No giant cells showing any advanced stage of degeneration or necrosis were found though careful search was made for them. Only in a few cells were small skeins of chromatin found projecting into the cell-protoplasm from the main body of the nucleus. In all of the cells the nuclei stain very deeply and uniformly and this with their size makes them very easily discoverable in a low-power examination.

That the cells in all of the cases were circulating in the blood at the time of death is shown by their presence in the blood in the larger vessels, the lumina of which they do not fill and where they are not entangled in thrombi. Further, the appearance in many of the small capillaries is more suggestive of ameboid movement than of the position which cells would assume if forcibly pushed into a narrow vessel. The irregular, knobbed nuclei are seen in straight capillaries as well as in winding ones; and further, in some of the larger capillaries elongated, budding nuclei are found possessing a distinct cell-body which does not entirely fill the lumen of the capillary. Red blood-cells and leucocytes lie between the capillary wall and the body of the giant cell, the former not showing the alterations of size and form which would result if the giant cell had been forced into the vessel with them. It is possible that such cells may have been dislodged backward by a retrograde current, but in that case it would seem probable that they would assume their original form. Arnold's observations showed that in the marrow the giant cells slowly changed their form and position, and it seems to me very probable that they show the same ameboid powers when in the lung capillaries.

The absence of cells showing any advanced stage of degeneration leads me to the opinion that the metastasis of these giant cells is in all of my cases either an agonal or pre-agonal leucocytosis, and is probably, as suggested by Aschoff and Arnold, chemotactic or phagocytic in its nature. Whether this pre-agonal emigration of the marrow-cells is a part of the pre-agonal leucocytosis observed in many cases I cannot say. In the only case in my possession where a pre-agonal leucocytosis was noted by the clinician (acute miliary tuberculosis) I have not been able to find any giant cells in the lung capillaries.

It is, of course, probable that under certain conditions, pregnancy, etc., the giant cells enter the circulation without any relation to the occurrence of death. From the findings in the cases of splenic anemia and pernicious anemia following epistaxis there is also the possibility that in these cases giant cells resembling bone-marrow cells may have been formed in the lymph-glands, liver or spleen, as well as in the bone-marrow and that they may bear an intimate relation to the regeneration of the red blood-corpuscles. It is my intention to pursue further the study of the giant cells found in these cases with reference to this question.

Summing up the results of the above study of my case and of the literature I arrive at the

following conclusions concerning the emboli of giant cells found in the pulmonary capillaries:

1. Mono- and multinuclear giant cells appear in the pulmonary vessels in a large variety of widely-varying pathological conditions. In some cases they also appear in the capillaries of the liver, spleen and kidneys.

2. The source of these cells may be either the placenta, bone-marrow, spleen, or lymphatic glands, but we have no means of absolutely determining such origin except in the cases where portions of villi or of marrow tissue are also found.

3. It is not possible with present staining methods to differentiate between single giant cells arising from the syncytium, periplacental tissue, bone-marrow, spleen or lymphatic glands.

4. It is probable that in the majority of cases the giant cells found in the lung-capillaries arise from the bone-marrow, and that in some conditions (pregnancy) the metastasis is physiological, while in others it may be of the nature of an agonal or pre-agonal leucocytosis. In other conditions it may be the result of diseased conditions in the bone-marrow itself. The exact significance of the process remains yet to be discovered, but it is probably of far greater importance than that of an accidental occurrence, as it has generally been considered.

From the study of my case it would also appear that the diagnosis of liver-cell emboli in the lungs is very difficult and practically impossible if pieces of liver-tissue showing distinct structure are not present. My material was taken from the body so soon after death that the changes found in the liver-cells can hardly be considered to be post-mortem, yet all of the liver-cells which were found loosened from their normal relations, either in the hepatic or lung-vessels, showed advanced cloudy swelling and necrosis, to such an extent that the free cells showed no characteristics which would differentiate them from other dead parenchymatous cells. It was only the finding of small portions of liver-tissue showing the liver rods and capillaries with endothelial nuclei still staining that led me finally to the diagnosis of liver-cell embolism. As mentioned above the necrosed cells found singly and in groups were regarded as liver-cells only from their general resemblances to the dead and dying liver-cells found in the larger masses. I should not have felt justified in calling them liver-cells had they alone been found.

It is worthy of note that the liver-cells in my case underwent such rapid death. This accords with all of my observations made upon liver-cells, to the effect that necrosis and degeneration quickly follow any disturbance of their normal relations; so it would be expected that transported liver-cells would quickly die, as was shown in this case. Yet Jürgens advanced the hypothesis and Klebs claimed that the free liver-cells in the blood-stream not only are preserved for a long time but that they may undergo a proliferation. The latter asserted that he found young liver-cells in the capillaries of the kidneys and adrenals. Both Schmorl and Lubarsch oppose this view and doubt the accuracy of Klebs' observations. Lubarsch believes that the loosened cells may be preserved for three weeks, as in one of his cases of eclampsia where death took place twenty days after the convulsion he found emboli showing living liver-cells. This does not prove, however, that the liver-cells had been out of their normal relations for this period of time. In other cases where death occurred five to six days after the attack the majority of the liver-cells showed advanced degenerative changes. In animal experiments the cells quickly necrose, and disappear after one day. Such an early death of liver-cells loosened from their normal relations is in accord with our general experience regarding the life-processes of parenchymatous cells, and I consider it to be most probable that in the human body as well as in the rabbit necrosis of such loosened cells follows almost immediately. Proliferation of such damaged cells cannot take place.

The manner of death of the transported liver-cells in my case was that of a cloudy swelling leading to a simple necrosis and liquefaction. Only in the cells of the larger groups where the necrosis was not so complete were small fat droplets present. As the normal cells of the liver contained no fat the process of fatty degeneration in this case is shown to be of a slower nature than the simple necrosis. In those cells dying quickly no fat is formed, but in the slowly dying ones minute fat droplets are formed. That the dead and dying liver-cells are apparently conducive to coagulation and thrombosis is shown by the fact that in all cases they lie in fibrin masses. This confirms the observations of Lubarsch and also bears out his conclusion that neither liver-cell embolism nor thrombosis of the pulmonary capillaries is the cause of the convulsions of eclampsia.

The absence of the fatty embolism in my case is also worthy of remark. Jürgens looked upon the fatty embolism found in eclampsia and delirium tremens as caused by the associated liver-cell embolism, but Schmorl found it in cases where the liver contained no fat. Maximow held it to be associated with marrow-cell metastasis, but it is not present in any one of my five cases where giant-cell emboli are found in the lung-capillaries. It is, therefore, not an essential accompaniment of either form of embolism.

Because of the difficulty in diagnosis of single necrosed liver-cells in the blood-vessels, I think that all cases where the diagnosis was made from such cells alone should be regarded as doubtful. This is especially true when the liver-cells are found in the hepatic vessels. Schmorl, Lubarsch and Leusden have already pointed out the danger of confusion with artefacts. In the cutting and handling of the liver at the autopsy liver-cells are easily displaced into the vessels, and I have many times observed the presence of

free cells in the vessels in sections taken from blocks cut deep in the tissue, and have always regarded these as artefacts. To my mind the guiding points given by Schmorl for the differential diagnosis between such artefacts and true metastasis of liver-cells into the hepatic vessels are not sufficient. The only safe guide is, I think, the presence of distinct liver lesions in which laceration of the liver lobules and rupture of the hepatic vessels occur. That metastasis of liver-cells occurs in the simple degenerative conditions of that organ observed in many cases of eclampsia, sepsis, acute infections, delirium tremens, etc., as reported by Turner, Jürgens, Klebs, Lubarsch, etc., I consider highly doubtful and believe that the cells seen in these cases were most probably artefacts. There can be but little doubt of this in Turner's and Klebs' cases.

Further, it is highly probable that many of the appearances in the pulmonary capillaries diagnosed as liver-cells were in reality bone-marrow cells. This is clearly shown in the descriptions given by Lubarsch. He found many masses of deeply-staining chromatin which he regarded as degenerating liver-cells. His description of these corresponds in all respects to the various appearances presented by the marrow giant cells. The dying liver-cell does not become hyperchromatic to the degree shown in tumor-cells as is thought to be the case by Lubarsch; there is invariably a gradual fading-out of the nucleus or a diffusion of finely-granular chromatin which also gradually loses its staining power. Lubarsch, himself, says that if placental cells are present as is the case in eclampsia, it is wholly impossible to differentiate between such degenerated liver-cells and placental cells. I have seen no appearances which would make me believe that dying liver-cells ever come in the least to resemble the hyperchromatic giant cells of the placenta or bone-marrow, and I am forced to believe that the cells described by Lubarsch were not liver-cells but either one or the other of the two kinds of giant cells. To my mind also Lubarsch's statement bears out my view of the confusion attending the differential diagnosis of these cells. Further, no processes of coagulation are seen about these deeply-staining masses of chromatin as are in every case found about the dying liver-cells; and this, I think, may be taken as evidence that they do not represent degenerating cells.

In cases of traumatic injury to the liver in which death takes place within a few hours the presence in the lung-vessels of definite portions of liver-tissue put the diagnosis above all question. Such cases are those described by Schmorl, v. Zenker and Hess.

In conclusion, the aim of this paper has been to point out the confusion which exists in the recognition of the giant cells found in the pulmonary vessels, and the fact that at present there are no means of differential diagnosis as to whether these cells are of placental, spleen or bone-marrow origin, and that the significance of such metastasis needs to be cleared up by further investigations. It is my intention to pursue further with reference to these questions the study of the four cases mentioned above.

My thanks are due Dr. Schmorl of Dresden for his kindness in giving me access to the eclampsia material while working in his laboratory as volunteer assistant.

Note.—Specimens of the above case were sent to Dr. Schmorl for examination. In reply he states that he cannot with certainty consider the giant cells in the pulmonary capillaries to be identical with placental cells. Dr. Schmorl has further with great kindness written me fully as to his present point of view concerning the differential diagnosis of these cells. In short, this is as follows: *The placental cell must possess a definite protoplasmic body in which numerous nuclei lie isolated without connecting bands of chromatin. In the narrowest pulmonary capillaries these cells cannot be differentiated from other giant cells; therefore, search should be made for them in the larger capillaries and small arterioles.*

As seen from my drawing and from the description given above cells corresponding in every way to these requirements were found in my case, but were very rare in comparison to the number of mononuclear forms.

BIBLIOGRAPHY.

Arnold. Virch. Archiv, 1895, Bd. 140, S. 411.
Aschoff. Virch. Archiv, 1893, Bd. 134, S. 11.
Hess. Virch. Archiv, 1890, Bd. 122, S. 154.
Jürgens. Berlin. klin. Wochenschr., 1886.
Kasajanow. (Cited by Maximow.)
Klebs. Ziegler's Beiträge, Bd. 2.
Leusden. Virch. Archiv, 1895, Bd. 142, S. 1.
Lubarsch. Fortschritt d. Med., 1893.
Lubarsch. Virch. Archiv, 1898, Bd. 151, S. 546.
Maximow. Virch. Archiv, 1898, Bd. 151, S. 297.
Pilliet. Gazette heb., 1890.
Prutz. Zeitschrift für Gynäkol., Bd. 23.
v. Recklinghausen. (Cited by Lubarsch.)
Schmorl. Pathologisch-anatom. Untersuchungen über Puerperal-Eklampsie, 1893.
Schmorl. Deutsch. Arch. für klin. Med., Bd. 42, S. 493.
Schmorl. Centralblatt für Geburtsh. und Gyn., 1897, S. 1216.
Turner. Trans. of Lond. Path. Soc., 1884, 1886.
v. Zenker. Deutsch. Arch. für klin. Med., Bd. 42, S. 503.

POST-APOPLECTIC TEMPERATURE AND DISTURBANCES OF THE ALIMENTARY TRACT: THEIR MANAGEMENT.

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THE cerebral lesions included in the term apoplexy, hemorrhage, embolism and thrombosis, may all be followed by variations in temperature and certain disturbances of the alimentary tract. It is after cerebral hemorrhage that such temperature disturbances are most common and of the greatest range of variation. Those apoplexies affecting the motor area of the cerebrum and followed by more or less complete hemiplegia being most frequent and, in the majority of cases, resulting in the greatest implica-

tion of destruction of tissue, have afforded me more opportunity for observing temperature changes and alimentary disturbances than lesions outside of that area. The rare conditions of amnesia of organic origin dependent upon implication of large cortical areas, and the more common, yet still rare, states of aphasia unaccompanied by motor paralysis of the extremities may also be followed by variations in temperature.

It is usual to find immediately following the cerebral hemorrhage, during the coma, if the lesion has been of sufficient severity to produce a comatose condition, a slightly subnormal temperature; usually from 97.5° to 98° F. After the lapse of a longer or shorter interval of time, a period frequently coinciding with the passage of coma and the resumption of the conscious state, a gradual rise of temperature, up to perhaps 101° F. or even higher, develops. At this stage the temperature, taken in the axilla, is frequently from one to two degrees higher on the paralyzed than on the unaffected side. In those patients who progress favorably the temperature gradually subsides (in about twenty-four hours), although the temperature of the affected side usually remains somewhat higher than that of the opposite side for some days. Subsequently the paralyzed side becomes markedly colder than the well side, a condition which is constantly attendant upon the hemiplegic state.

The accident of infection of the cerebral lesion and the establishment of cerebritis or of localized suppurative areas is fortunately rare, occurring only when trauma or other accident has opened a channel for the entrance of bacteria or where an infected embolus is carried to the brain from already existing foci of disease in other parts of the body. In the latter instance the temperature resulting from the already existing disease is accelerated by the cerebral implication.

Where the lesion is a hemorrhage of large size with continuous coma the temperature frequently rises to 103° F., or even higher. In such instances the temperature rise is coincident with extension of the hemorrhage into the lateral ventricle. Such an extension is followed by fatal results, the patient continuing comatose and the temperature rising until death occurs. Thus continued high temperature is ascribed to one or more of these conditions. From my observations I am led to believe that a continued high temperature, at times irregular in its fluctuations, may be dependent entirely upon the absorption of infective material in the alimentary canal. As the temperature is sometimes the only guide to the condition, the possession of an absolutely harmless and rapidly acting therapeutic agent is of great value as an aid to differential diagnosis. We have such an agent in hydrogen dioxide.

Various disturbances of the digestive organs, usually of a fermentative type, dependent upon a lack of tone of the alimentary tract, occur frequently after cerebral apoplexy. These conditions are often slight and at times absent, as far as we may judge. They are distressing, and at times dangerous conditions calling for active interference not uncommonly arise. In those patients in whom no active alimentary disturbance occurs we find almost constantly a condition which may be described as alimentary torpidity.

Heretofore it has been customary to meet the symptoms arising from fermentative changes with, preferably, small doses of calomel. This drug is sometimes contraindicated and its continued exhibition is very apt to result unfortunately. Other intestinal and stomachic disinfectants have been used with varying results, and no one in particular appears to meet the requirements with any constancy.

Hydrogen dioxide does, however, not only take the place of calomel but seems to be much more effective. Its administration, provided it is pure, is attended by no bad results and its action is rapid. It can be repeated as frequently as necessity requires. In addition to its action upon fermentation it appears to have a slightly stimulating effect upon the digestive functions. I believe that it hastens stomachic digestion, but of this I am not certain. It does, however, overcome the conditions which I have described above as alimentary torpidity.

After the administration of hydrogen dioxide in the first case in which I used it, I found that it not only improved the condition of the alimentary tract, but that the temperature subsided. Within five hours the temperature declined from 101° to 100° F. At the time I was under the impression that this was merely a coincidence, but a similar effect in subsequent cases convinced me that the decline was effected by the medication. Subsequently the occurrence of two cases in which the administration of this agent was followed by a rapid decline of the temperature of the paralyzed side with a slower decline of that on the unaffected side, opened up a field of speculation as to the *modus operandi* of hydrogen dioxide on the economy, acting through the intestinal tract, and also the reason for the presence of temperature changes after apoplexy.

In my first patient the lesion was probably an embolism in the left internal capsule, including the arm and leg fibers. The temperature in the right axilla four hours after the "stroke" and one-half hour after the return of consciousness was 100.6° F., and in the left 99.4° F. Hydrogen dioxide was given, one dram repeated every hour. At the expiration of five hours the temperature in the left axilla was 99° F.; in the right, 99.6° F. This showed a decline of 1° F. on the paralyzed side and only .4° F. on the unaffected side.

The second case was one of hemorrhage into the right internal capsule, producing complete left hemiplegia. The loss of consciousness in

this case extended over a period of twelve hours. The temperature remained subnormal for several hours when it began to rise, continuing rapidly up to 102.2° F. in the left axilla and 101° F. in the right. Owing to difficulty in getting the patient to swallow, hydrogen dioxide was not administered until several (about five) hours afterward, about twenty hours after the "stroke." The axillary temperature then was 101.6° F. left, 100.2° F. right. Dram doses of this remedy were then given, repeated every half hour and the patient's pulse watched closely. This was continued for three hours, and during that time the pulse remained practically unchanged. The axillary temperature then was, left 100.4° F., right 99.8° F. It will be observed that in these two cases the temperature was not only reduced, but the reduction was more rapid on the affected side than on the well side. In all of the other cases the temperature was reduced, but always equally.

The effects of the hydrogen dioxide seem to demonstrate positively that the temperature following the apoplectic "stroke" is due in part to the absorption of septic material in the alimentary canal. The two cases in which the temperature on the affected side fell more rapidly than that of the opposite side pointed to the probability of the temperature being due in part at least to vasomotor disturbances. If this were the case and if the hydrogen dioxide had produced any vasomotor effect the conditions could be demonstrated experimentally. Two similar experiments were made at different times upon the same individual. The subject, a healthy man, inserted his arm in the plethysmograph and a reading was taken. Hydrogen dioxide was then administered, but without any change in the position of the recording column of water. The same results followed the second trial.

I conclude, therefore, that the more rapid fall in the temperature of the paralyzed side was not due to any vasomotor effects of the hydrogen dioxide, but to the fact that with the resumption of more nearly normal conditions of the intestinal tract the circulation also became more perfectly adjusted and the heat was more rapidly lost. In other words the fall in temperature was merely just what we should expect with the resumption of general functional activity.

Therapeutically hydrogen dioxide is an agent which acts well in the alimentary disturbance above mentioned. The reduction of temperature is coincident upon the effects of hydrogen dioxide upon the alimentary conditions. It has been my practice to give the drug combined with an equal quantity of chemically pure glycerin.

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MEDICAL PROGRESS.

Albuminous Food in Disease.—The carefully written article of J. Flesch (*Klin. therap. Woch.*, August 19, 1900) is a valuable addition to the already extensive literature on artificially prepared proteids for the sick-room. The author first shows that all attempts to entirely prevent loss of weight in febrile and cachectic states will ever prove futile since emaciation is a cardinal symptoms of these conditions, caused no less by the anorexia, disturbances of the digestive tract and the sensorium than by the pathological process itself. A fluid diet is always to be preferred, since the temperature of the fluid can be better controlled and since the toxins are more readily thus washed out of the kidneys. The value of milk lies in the fact that it contains all of the three great classes of foodstuffs, the amount of any one of which can be increased to suit special indications. Thus, milk may be made richer in fat by adding cream or by the use of Gaertner's "Fettmilch," which, however, is often not palatable to the patient; the percentage of carbohydrates can be raised by the addition of milk-sugar, and many of the newer albuminous preparations are available for making it more highly nitrogenous. The simplest procedure for the latter purpose would be to boil down the milk or to add an egg, but to both there are objections. The addition of tropon, sanatogen, sanose, eucasin, somatose or nutrose, the author does not recommend, since the organism does not sufficiently utilize them. Moreover, tropon and sanose have the disadvantage of being insoluble and eucasin and nutrose of having a disagreeable taste. Such faults cannot, however, be found with plasmon, an albuminous body obtained from skimmed milk mechanically by the addition of bicarbonate of sodium, for it agrees perfectly with the patients, increases the consistency of the stools and reduces the loss of weight to a minimum. An important point in its administration is to change the vehicle as much as possible, and the fact that plasmon may be given with almost any food readily permits this. In case plasmon should cause constipation, the addition of milk-sugar is to be considered.

Os Magnum and Wrist-Joint Tuberculosis.—D. E. Mundell (*Annals of Surgery*, August, 1900) considers the os magnum, because of its anatomical relations to adjacent bones, being the pivotal, central and main bone of the wrist, with its seven articulations, most likely to receive the effects of traumata to the wrist bones, especially sprains. Tubercle bacilli manifest themselves in bone by a process of rarefaction. Repeated strains on any bone may favor tuberculosis on account of minute foci of inflammation resulting from the "jarring" of the trabeculæ. As the os magnum is so situated as to receive the effects of injuries from three metacarpal bones, as it performs more movements in flexion and extension than the other bones, and as in their movements greater strain is thrown on it than on the other carpal bones, from the numerous ligaments connected with it and resisting such movements, we have in part an explanation of the os

magnum being so often the principal seat of tuberculosis wrist-joint disease.

Pulmonary Tuberculosis.—Of the different preparations of guaiacol C. J. Whalen (*Medicine*, September, 1900) always had most success with the liquid form given in five-minim capsules after each meal, and increased one drop each day until saturation of the patient. At the same time guaiacol is applied externally, sometimes with marked effect on the cough and fever. If the stomach does not tolerate guaiacol, oil of cloves internally and guaiacol externally may be given. Other excellent remedies are iodine, strychnine and arsenic phosphorus, cod-liver oil and the malt liquors. One of the most pleasant and easily assimilated preparations is red bone-marrow. The diet should be nutritious, chiefly meat, milk, eggs, farinaceous food, and butter. Raw eggs may be taken with great advantage even to the number of two dozen a day. Among inhalations, formalin in two- to twenty-five-per-cent. strength, and inhaled for fifteen minutes twice a day is by far the best. Iodine, carbolic acid, creosote, the oils of white pine, cinnamon, and cloves, and eucalyptol and thymol are also of value. There should be moderate exercise without fatigue, and lung gymnastics such as deep breathing, daily cold applications to the chest and vigorous friction. The diarrhea may be controlled by 40 to 100 grains a day of bismuth, or in extreme cases with acetate of lead and opium. The night-sweats succumb to 1/120 to 1/60 grain of atropine at bedtime, or to 1/6 grain of agaricin. Where these fail ten-grain doses of sulfonal or cold sponging may be of benefit. Hemoptysis as a rule requires no treatment. If, however, there is much restlessness and cough morphine may be administered. The blood-pressure may be lessened by recumbency, saline cathartics, diuretics, and counterirritation. If these measures do not sufficiently lower the arterial tension, aconite, one minim every hour, or veratrum viride, or 1/100 grain of nitroglycerin may be of value. The author believes that tuberculin has no curative power, and his results with the intrapleural injection of nitrogen have been disappointing. In many cases a change of climate is advisable, but not when the patient is likely to suffer from homesickness or be denied the comforts of home. Persons with weak constitutions should never be sent to high altitudes, but should be directed to warm, sheltered places; those with strong constitutions do best in a mountain climate, no degree of cold is contraindicated, providing the altitude is suitable for the stage of the disease. In high altitudes the freedom from bacteria lessens the danger of secondary mixed infection, and the rarefaction of the air brings into use a large portion of the lungs which is not used at a lower level.

Typhoid Fever.—C. H. Andersen (*Medicine*, September, 1900) outlines as follows his treatment of eighty-seven typhoid patients at Fortress Monroe. The patients being in tents and the attendants unskilled, cold baths were not attempted, but a lukewarm bath was given each morning. The bowels were regulated by calomel in two-grain doses two or three times a week if necessary. Two ounces of milk was given every two hours and two ounces of water in the intervening hours, 1/60 grain of strychnine nitrate three times a day, and brandy every four hours or oftener according to the pulse; up to eighteen ounces in twenty-four hours. The milk was gradually increased up to five or six ounces every two hours unless undigested milk appeared in the stool. Peptonized milk was substituted in irritable stomachs. In the third week of convalescence soft-boiled eggs, eggs and milk, ice cream, and soft milk-toast were allowed. Where milk was not well borne a proprietary food was used, and this, mixed with hot water, was also especially useful in irritation of the intestines and diarrhea. Among all these cases there were only five relapses. Hemorrhage occurred in seven cases, and five of these were infused with normal salt solution with happy results.

Milk for Infants of the Poor.—During the past summer attempts have been made, especially in Chicago, to find a food for poor infants which might be superior to sterilized or pasteurized milk. It is believed that sterilization greatly deteriorates the food value of milk, causing (1) coagulation of the albumen and consequent difficulty in digestion, (2) loss of the emulsion of the fats, (3) change of sugars to caramel, (4) splitting up of lecithin and nuclein and change in the soluble salts. Pasteurization does not alter the milk so markedly, but is also admitted by many reliable authorities to be a necessary evil. G. F. Palmer (*N. Y. Med. Jour.*, September 8, 1900) urges that no amount of heating can purify a foul milk for the toxins and bacterial products are extremely resistant, and hence a comparatively clean milk is absolutely essential to infant feeding. If one can be sure of reasonably pure milk the advantages of modified raw milk must be admitted. The author first made sure of a good supply of clean certified milk and then modified it according to the rules usually given by the addition of cream and milk sugar. He, however, began with rather larger percentages of proteids and decreased as the age of the infant increased in imitation of normal lactation. The food was packed in sterile jars and placed in large buckets of ice in which it was carried home. These methods were carried out at a diet kitchen in Chicago, and although 700 applications for food and medical care have been made during the summer only three deaths have occurred. The purity of the milk is vastly more important than the degree or character of the modification, and it is therefore incumbent on charitable institutions for children, or better, upon the city government, to insist upon a pure certified milk supply.

Treatment of Gastroenteric Infection of Chil-

dren.—Since the chief cause of gastroenteritis is infection, the primary indication is to empty the intestinal tract of all food and bacteria. Nature attempts this by regurgitation and vomiting of food taken and by causing a serous diarrhea. M. E. Fitch (*Med. Times,* September, 1900) gives small doses of calomel every half hour till there is a yellow stool. Irrigation of the bowel is also at once performed. A gallon of warm sterile water is used, if much mucus is present, adding a little sodium bicarbonate. The temperature should be from 100° F. to 110° F. and the bag held about three feet above the child. The catheter should be inserted as far as possible and the flow continued until it returns clear. In prolonged cases a cool fluid such as one-half-per-cent. lysol or thymol may be used and is often strikingly successful. The feeding of the child is extremely important. In the acute stage milk should be avoided. The white of an egg beaten up in cool water and sweetened with sugar of milk is good. Later sterilized albuminized food, as broths, can be given in small doses with the white of egg. Sterile water should be given *ad libitum.* Antipyretic drugs should not be used. Cold applications to the abdomen are grateful, but a piece of flannel should protect the skin. In the chronic cases, the prognosis is not good. The bowels must be kept clean. Stomach and intestinal lavage are important and inunctions of olive oil with a little alcohol or chloroform are helpful. Fowler's solution and creosote are used internally.

New Physical Sign in Heart Dislocation.—Acute or chronic dilatation of the stomach is frequently the cause of so much dislocation in the position of the heart, says A. Abrams (*Med. Rec.,* September 8, 1900), that severe dyspnea, asthmatic attacks and even pseudo-angina may result. He calls this difficult breathing sequential to gastric dilatation, gastrectatic dyspnea. Many sufferers from this form of dyspnea make no mention of dyspeptic symptoms, the latter being masked by pressure signs, but the condition is relieved by treatment of the stomach alone. Their distress is sudden in origin, attended by a feeling of weight and pressure in the precordial region and eructations of gas usually mark the relief of the paroxysm. It is believed that these attacks are due to the pressure upward of the heart by a dilated stomach. A case is mentioned in which the patient could voluntarily, by buccal insufflation of the stomach, completely obliterate the cardiac dulness. In the cases above mentioned there was also a decrease in the cardiac dulness with correspondingly enfeebled heart sounds, bearing a distinct relation to the severity of the pressure symptoms. Ferber's sign to detect a dilated stomach was that the tympanitic percussion note found in Traube's space, formed by the stomach beneath the lower border of the left lung, gradually disappears behind the axillary line if the stomach is normal, but may be traced to the vertebral column when the stomach is much dilated. This is not considered very reliable, for the spleen usually interferes with the percussion note of the stomach in that area, especially if the spleen is displaced or enlarged. The author has found that when the heart is dislocated upward by a dilated stomach a patch of dulness and even flatness may be detected in the interscapular region on the left side, about midway between the vertebral column and the internal border of the scapula. The dull area may vary from the size of a dollar to that of nearly the whole interscapular region. It disappears when the patient leans forward, reappears on assuming the erect position and is increased by leaning backward. Bronchial respiration is also heard over the dull area, but ceases when the patient leans forward. The dulness is due to compression of the lung and can be demonstrated by inflating the stomach.

Gastroenterostomy and Gastric Function.—The operation of gastroenterostomy is usually one of necessity to relieve a pyloric obstruction, a perforation or a hemorrhage and the subsequent secretory functions are usually of secondary importance. It is seldom that opportunities are allowed for studying the functions of the stomach for any length of time before such an operation, and then continue the observations subsequently to detect the results upon the gastric functions. C. S. Fisher (*Med. Rec.,* September 8, 1900) has reported four cases coming under his care which were operated upon by Dr. R. F. Weir. Detailed examinations were made of all cases for several months before and after operation. One case was that of a benign pyloric stenosis with dilatation. The principal symptom was an intense, spasmodic and remittent pain. Repeated examinations showed a hyperacidity, an impaired motility and considerable dilatation. After operation the case was followed for fourteen months and the results show that the pain had been entirely relieved, the dilatation diminished, the motility was still impaired and the hyperacidity had increased. Another case of benign pyloric stenosis in which there was a gradual increase in the acidity previous to operation with severe symptoms and marked diminution in motility, made a good recovery after the operation, his nutrition improved, the pain ceased, but the hyperacidity seemed to continue to increase. The size of the stomach was markedly reduced. A third case of hyperacidity which caused a pyloric spasm and moderate dilatation was followed for some time with increasing symptoms and an operation of expediency advised. For six weeks after the operation the hydrochloric acid remained normal. Then as a result of mental distress it increased temporarily, but the symptoms never returned. A fourth case of dilatation of stomach without pyloric obstruction and with movable kidney is reported. She was under observation for about four years previous to the operation, and during that time there was a slow gradual diminution in the hydrochloric acid secretion,

there was marked atony and large quantities of fermenting material always present. After the operation the patient began to regain flesh, her pains disappeared and except for occasional attacks of fermentation she has been well since (one year). Notwithstanding the evident improvement in her physical condition the degeneration of the glandular structures of the stomach have continued for there is now no free hydrochloric acid present. The size and position of the stomach remain about the same, but the motility has apparently improved. It thus seems that when the stomach wall has been the seat of a chronic irritation leading to the hypertrophy or atrophy of the glandular structures, an operation which relieves the obstruction will not influence this chronic inflammation which continues. Symptoms do not return, for the immediate cause of distress has been removed, and either hyperacidity or subacidity can exist in stomachs without giving any subjective symptoms. Freedom from symptoms in cases of subacidity depends entirely on the activity of the muscular wall. Furthermore, it seems that the stomach returns to a normal condition of size and motility in cases in which these disturbances were due to obstruction. The regulation of the intestines is one of the best results obtained by gastroenterostomy. These cases are representative of a type in which the operation is not one of necessity but expediency, and hence it is all the more important for the physicians to know what improvements in the symptoms and conditions can be offered the patient.

Treatment of Hemoptysis.—J. E. Frazer (*Therapeutic Gazette*, August, 1900) outlines the treatment for pulmonary hemoptysis in vogue in his practice. The basis of treatment rests on the principle of reducing the intravascular pressure at the site of the hemorrhage. This may be done in two ways: (1) By acting on the heart-beat, the primary origin of all blood-pressures; (2) by acting on the vascular approaches to the wounded vessel. Morphine acts better than any other drug to slow both the number and force of the full and rapid, bounding pulse-beats. Contraction of the vascular channels in front of the lesion is well brought about by ergot. Ergot is allowable, however, only when the bleeding is from vein or small arteriole. In fact, the use of ergot is very often rendered unnecessary as morphine alone is quite sufficient to stop the bleeding. Besides, as unstriped muscle is easily fatigued, it would not be possible to continue the use of the ergot for a long while. The author administers half a grain of morphine hypodermatically—never less than a quarter of a grain, for these patients are very tolerant. Hemorrhage having ceased, the most important point in the whole treatment is to prevent recurrence. An important point to remember in this connection is that after a certain interval the heart will pull itself together and beat with increasing speed and power causing the hemorrhage to recur. Therefore it is necessary to keep the pressure constantly at or below the point at which the hemorrhage ceased. This, of course, means constant supervision, using morphine supplemented by ergot when necessary. The injections may be repeated every two, three, four or six hours as indicated and the interval between them can gradually be increased after the first day or so. Drugs per os give very discouraging results, as they do not seem to be properly absorbed. Chloride of calcium has been used occasionally with success in patients whose blood showed a lack of clotting power. In the great majority of cases, however, it is unnecessary. As for additional means of treatment, rest in bed is a necessity. Too little time is usually allowed for this. In a minor hemorrhage in which but a few ounces of blood are lost, at least five to seven days ought to be spent in bed. For severe hemorrhage, fully several weeks are necessary for the ill effects of the bleeding to be tided over. The diet should be light and cold. The use of purgatives is a mooted question. Where the bleeding has been slight, with no immediate prospect of recurrence for some hours at least, a saline aperient at the commencement is useful; but where the heart's action is excited, this should be strictly interdicted. The action of speaking may usually be disregarded. Cough, if troublesome, may yield to regular doses of chloral or codeine. Pain in the chest generally yields to counterirritation. Pain in the abdomen, if muscular in character, quickly succumbs to firm cross-strapping; if internal, it is probably due to intestinal gout, as described by Haig, and yields readily to sodium salicylate. This condition seems to be due to the injection of morphine. Vomiting seldom takes place, but should it be present and severe, it will be relieved by one-twelfth grain of cocaine. Antimony and ipecac, being too depressing, must never be used. Should the bleeding be arterial the treatment differs in that ergot is inadmissible. In bad cases with high blood-pressure there is small chance of success. When morphine seems to have had but slight or transient action in slowing the heart-beat, aconite has frequently given good results. The ice-bag causes slight effect in slowing the beat and is hardly worth the discomfort it causes. Digitalis may be of use in very mild cases, but has no advantage over morphine in slowing the heart. The minor, impure hemorrhages, in which the sputum is slightly stained with blood and pain and oppression in the chest are felt, are improved by a sharp, saline purge followed by a few doses of ergot.

Syphilis and Diabetes.—Alfred Fournier (*Bull. de l'Acad. de Méd.*, August 20, 1900) reports the case of a girl with syphilitic father attacked at the age of six weeks with a persistent coryza, papulo-erosive syphilides on anus and genitals, and ulcerations in the mouth. Antisyphilitic treatment resulted in a cure, but when seven years of age the girl suffered from a marked

diabetes. All ordinary treatment was of no avail, but the diabetes was promptly cured under specific treatment.

Abdominal Hysterectomy for Ovarian Tumors.—Quenu and Longuet (*Revue de Chirurgie*, July, 1900) narrate the history of nine cases, of which the following one is typical. A woman, aged forty-eight years, whose previous uterine history as to menstruation and childbirth was normal until one year ago, when abdominal swelling was noticed. Examination revealed cystic tumors of both ovaries, the right hand one occupying the abdominal cavity as high as the umbilicus, the left one occupying the iliac fossa, the uterus was displaced downward and backward. The diagnosis of bilateral cystic tumor of the ovary having been made, a hysterectomy with bilateral ovariectomy was done, after the removal of ascites; the tumor was found to consist of multiple papillomatous vegetations involving the large mesentery, the pelvis, and the uterus; the removal of the entire mass which was difficult to accomplish, was followed by a perfect convalescence. With this case and eight similar ones, all successfully operated on, as texts, they draw the following deductions: That total abdominal castration for neoplasms of the uterine adnexa is justifiable, the gravity of the operation being less than usually believed, the mortality in their experience being *nil*. That this procedure has great technical advantages over other methods; the facility with which the ovarian cysts are first isolated and removed, and all adjacent adhesions broken up, being among the prominent advantages; moreover, post-operative accidents, such as intestinal occlusion, are thereby obviated, with a greater guarantee of absolute cure. The indications for total abdominal castration are as follows: (1) Cysts and tumors of the ovaries complicated by inflammation of the uterus, peri-uteritis and salpingitis. (2) Cysts and tumors of the ovary with a uterine involvement. (3) In bilateral cysts and tumors of the ovary, where owing to the size of tumor, or its involvement of adjacent tissue, it is impossible to separate readily the mass from the uterus. The operation is contraindicated when the ovarian tumor is unilateral and occurs in a young woman; when the uterine tissue is not involved; and when one can secure the proper enucleation of the ovarian mass by less heroic measures.

Alcohol a Poison Not a Food.—The therapeutic value of alcohol has long been a matter of dispute between clinician and theorist. Usually it is the former who poses as its advocate, but Kassowitz (*Deutsche med. Woch.*, August 9-16-23, 1900) comes to the fore with a sweeping denunciation of its use and affirms that for a period of ten years he has administered none of it in his practice. Having formerly been in the habit of giving it freely, he considers himself qualified to draw conclusions and is of the opinion that it deserves no place in the therapeutic list. It is useless as a food for it is essentially a protoplasmic poison and therefore incapable of entering into combination in the body, while the belief that through its oxidation it is capable of effecting economy of the body's fat or albumin stores rests on an error of observation. It is true that on an alcohol diet less nitrogen is excreted, but this does not mean that a saving of the body tissues is going on, the fact is simply that owing to its destructive action the alcohol inhibits metabolism, the damaged protoplasm being less able to take part in the vital processes, while at the same time through its benumbing the higher centers the organs innervated by them are less able to functionate normally and oxidation is less active. In view of the numerous other antipyretics and stimulants at command, there seems no valid reason for employing an agent like this, the deleterious action of which on the heart muscle, kidneys, liver, arteries and nervous system is so universally admitted. As a true fuel-saver in febrile and asthenic states, sugar, which may be readily administered in the form of fruit juices, ices, sweetened lemonades, etc., answers every requirement and experiments with the ergograph have shown that after its absorption a rapid and very noteworthy improvement in muscular vigor and tone takes place which of course includes the heart action. As a stimulant camphor surpasses alcohol in its promptness of action and the complete absence of all disagreeable by-effects. It will be a real advance when it is universally recognized that no substance can play the double rôle of foodstuff and poison and that only toxic and never nutritive properties are to be ascribed to alcohol.

Roentgen-Ray Therapeutics.—As the applicability of the Röntgen-rays is being extended from the field of diagnosis alone to that of treatment, new factors in their activity are being recognized. Sträter (*Deutsche med. Woch.*, August 23, 1900) calls attention to the fact that in addition to the intensity of illumination produced, the penetrating power of the rays is of importance. This depends on the nature of the tube used, and he proposes a terminology by which this faculty may be arbitrarily expressed. Soft tubes are those the rays of which are principally absorbed by the skin and muscle, while those able to penetrate down to and through the bone are to be denominated as hard. These characteristics may be recognized by the nature of the shadow of the hand, for instance, thrown on the fluorescent screen. With a soft tube the outline of the soft parts is very distinct, but with increasing hardness it becomes fainter and even the bones are so brilliantly illuminated as to be less plainly visible. In illustration of the importance of the recognition of this variation in penetrating power of different tubes, the author cites a case of psoriasis treated by the rays. The lesion on one arm was completely cured by five applications with a soft tube, while that on the other was entirely unaffected by similar treatment with a hard one.

Empyema of Highmore's Antrum.—M. Halle (*Berl. klin. Woch.*, August 27, 1900) in reviewing the different methods of opening the antrum in suppurative disease says that many disadvantages adhere to the customary procedure. In draining by the way of the canine fossa it is true that the cavity is opened at its lowest point, yet cures in less than six months are rare, due no doubt to the communication with the mouth, which allows of constant reinfection with the numerous bacteria of the buccal mucous membrane. The continuous pressure of pus or of iodoform gauze in the mouth soon becomes very disagreeable to the patient. The same objections may be urged where an alveolar socket is chosen for the outlet of the secretion. The author recommends the following procedure: The mucous membrane of the lower nasal chamber on the diseased side is cocainized. A special trocar is then introduced close to the septum and allowed to pierce the outer wall close above the floor of the nose. Irrigations with boric acid solution to be followed by insufflations of iodoform are then used, at first daily, later at longer intervals. The advantages of this method can be summed up as follows: (1) The operation is simple, rapid, and does not demand an anesthetic. (2) An abnormal communication with the mouth is not made. (3) The patients are not troubled with the taste of iodoform. (4) A rapid and complete cure is assured.

Heroin in Whooping Cough and Phthisis.—After describing the chemical characteristics of heroin M. Loewenthal (*Phila. Med. Jour.*, September 8, 1900) reports in detail 13 cases in which he has used the drug. Three of the cases were of pulmonary tuberculosis and ten of them were of whooping cough. In the cases of tuberculosis the heroin was given in doses varying from 1/8 gr. t. i. d. to 1/30 gr. b. i. d. according to the action of the drug on the patient. Two of the three cases of tuberculosis improved in every way. The patients' cough diminished until practically absent, they slept better, and gained in weight. Expectoration ceased and appetite increased. Their temperature came down to normal. The duration of the treatment in these two cases was three weeks. The third case of tuberculosis improved some at first but soon got worse and died. The ten cases of whooping cough in which the writer used heroin ranged in age from eleven months to eight years. In several of the cases all other remedies had been tried in order to relieve the paroxysms of coughing without result. Heroin was used in doses of from gr. 1/125 to gr. 1/75 every three or four hours, the size of the dose being varied according to the age and the condition of the patient. In one or two patients heroin hydrochlorid was used hypodermatically. The results were all that could be expected in most of the cases, as there was relief from the paroxysms of coughing and the patients were able to sleep well. There were, however, two cases of the ten in which the drug did not act well, in fact, had no effect whatever. In one of these cases heroin seemed to aggravate the disease and also caused a pruritus of the anus. The duration of the treatment with heroin in these patients varied from ten days to three weeks. Loewenthal considers heroin to be superior to anything else we have in the treatment of whooping cough.

Rules in Kidney Operations.—M. Mankiewicz (*Berl. klin. Woch.*, August 27, 1900) advises conservatism in all surgical interference for kidney disease and, in case of nephrectomy, recommends extreme care in ascertaining a normal function of the remaining organ. The best way to ascertain whether or not a kidney is functionating properly is to cause an artificial glycosuria by the administration of 5 milligrams of phloridzin and then to collect the urine by ureteral catheterization. In case of disease it has been found that but little or no sugar will be secreted from the affected organ.

Bacillus Coli in Drinking-Water.—The presence of this germ in water is an undeniable evidence of sewage pollution and it may be found when the contamination is so slight that it cannot be appreciated by chemical tests. In an examination of 509 specimens J. H. Linsley and B. H. Stone (*Med. Rec.*, September 1, 1900) found the germ in seventy-eight, only thirty-one of which were condemned by chemical findings. The presence of the colon bacillus indicates that the contamination is of comparatively recent date and that it probably came from the surface. The search for the typhoid bacillus in water is carried on with much difficulty and results are very uncertain, but if there are no colon bacilli it can at least be said that the typhoid germ is absent. In a number of towns where typhoid fever has broken out no typhoid bacilli were found in the water-supply; it was, however, infected with colon bacilli. The authors conclude that waters in which the bacilli coli communis are found to exist for any length of time are dangerous.

Conjoined Tendon and Cure of Hernia.—J. A. Blake (*Med. Rec.*, September 1, 1900) claims as a result of numerous observations on the cadaver that the conjoined tendon (which is usually understood to be the insertion of the lower fibers of the internal oblique and transversalis muscles, extending along the ilio-pectoral line laterally for a variable distance from the rectus insertion) does not extend for more than five-eighths of an inch laterally from the insertion of the rectus; in the majority, the extent was less than half an inch; in some subjects its extent was inappreciable; and in all cases it consisted of only scattered muscular or tendinous fibers. The true conjoined tendon is ordinarily such a weak affair that it is negligible in operative procedures; it is only exceptionally that either it or the transversalis is included in the sutures in the Bassini operation, excepting

that the sutures placed in the neighborhood of the internal ring may include the transversalis. The main reliance in radical cure is in the internal oblique, and efforts should be made to restore the parallelism of its fibers to Poupart's ligament; this may be done in nearly all cases by separating the internal for a short distance upward from the transversalis fascia and the transversalis fascia and the transversalis aponeurosis, and then, thus having loosened it, it may be drawn down by the sutures to Poupart's ligament. As a rule it is futile to attempt to draw down the transversalis aponeurosis, since this structure is normally deficient for a considerable distance above the ligament.

Collecting Urine from Ureters.—M. L. Harris (*Annals of Surgery*, August, 1900) states that only two methods are valuable, *viz.*, ureteral catheterization and the use of the urine segregator. There are three prerequisites for the successful catheterization of the ureters: (1) An unobstructed urethra of sufficient size to permit the introduction of the instrument; (2) the bladder must have a capacity and tolerance for 120 to 150 cc. of fluid; (3) the fluid must remain transparent a sufficient length of time to permit the catheter to be introduced. These conditions apply equally to all uretero-cystoscopes; to the Kelly method, which is applicable only in the female, conditions 2 and 3 do not apply. The disadvantages of catheterization are that bladder capacity and bladder tolerance differ: that it is not always possible to keep the fluid in the bladder clear enough to permit the passage of sufficient light for distinct vision, the transparency of fluid often being interfered with by blood and pus; that sometimes it is impossible to catheterize the ureters; that the catheter may become choked up; and, finally, that infection may be carried to a previously healthy ureter and kidney despite all caution. To prevent bleeding in the use of the catheter it is advisable to first inject into the bladder fifty to sixty cc. of a five-per-cent. solution of suprarenal extract, allowing it to remain ten minutes; this is washed out and followed by fifteen to twenty cc. of a two-per-cent. solution of cocaine, which is allowed to remain about six minutes; if spasm of the bladder exists, from any cause, precede the above method by injecting the following into the rectum to relieve spasm: Antipyrin, one gram; Tr. opii, one cc.; water, ninety cc.; this requires thirty minutes to act and leaves the base of the bladder quite anesthetic. In the use of the urine segregator, the conditions essential to its successful use are much the same as those for the cystoscope; thus the urethra must admit an instrument the equivalent in caliber of a No. 24 French sound; the bladder must be large enough to allow the segregator to be opened within it; this presupposes a bladder capacity of at least 150 cc. As the sense of sight is not needed to locate the ureteral orifices, the transparency of the bladder fluid is not essential. This constitutes a great advantage. Before using the segregator the bladder should be thoroughly cleansed with a boracic-acid solution; in men, the prostate should be massaged during irrigation of the bladder so that the subsequent introduction of the lever may not press out any pus to find its way into the bladder; the same method, already mentioned in catheterization, of suprarenal extract washing, followed by cocaine solution into the bladder, is here employed. The advantages claimed for the segregator are that it enables one to collect all the urine from each kidney without contamination; it obviates the danger of infection of a sound ureter or previously healthy kidney; it permits a differential diagnosis of certain tumors of the abdomen; it determines which kidney is diseased, giving us the functional capacity of each; and it informs us whether or not the bladder is infected.

Pathological Physiology.—Pathology in its broadest sense, writes Isaac Levin (*Med. Rec.*, September 1, 1900), is a group of sciences studying the structure of a disease organism, pathological anatomy; its chemical composition, pathological chemistry; and its functions, pathological physiology. In this latter we study not only the abnormality of the function of a certain organ, but also the influence such an abnormality has on the rest of the organism. The function may be abnormal by changing its character or, retaining its character, by changing in degree. For example, the heart with a valvular lesion forces some of its blood back into the venous system and thus its function is changed in character, but if the heart merely becomes weak it decreases its work and its function is changed in degree only. In the circulation we must also consider active and passive hyperemias, local anemias, the constituents of the blood, vessel changes, etc. The function of the respiratory organ may be changed in three ways: The air-tubes leading to the alveoli may be obstructed (tumors, bronchitis, etc.), the alveoli may be filled with some other substance than air (pneumonia, edema, etc.) or the musculo-nervous apparatus may cease to work properly. In any case the whole organism is deprived of its necessary supply of oxygen and is unable to get rid of the rapidly accumulating carbonic oxide. Dyspnea tends to increase the oxygen supply, but it has a bad effect on the organism. Digestion, metabolism, excretion and heat economy play important parts in the study of the patient. Clinical data are not sufficient, because we seldom meet with disease of one organ when the rest of the body is normal; so we must resort to experimentation and pathological physiology becomes synonymous with experimental pathology. It is indispensable to progress in the treatment and prevention of disease, and to it is already due our knowledge of the hygiene of food, immunization, and the prevention of epidemics.

Impotentia Virilis.—The chief symptoms to be combatted are those arising from the male genitals causing the neuresthenia so often witnessed in this affection. Chief among these symptoms are premature ejaculations, weak erections, pollution, spermatorrhea and prostatorrhea. Very frequently two or more may be combined. Zabludowski describes the therapy of these affections in the *Berlin. klin. Woch.* (August 13, 1900). Most of the afflicted patients could refer their troubles back to masturbation and other abuses and perversities *in venere*, while others laid the blame on early gonorrheic processes. In a few cases the cause could be traced to long-continued local treatment of gonorrhea, such as bougies, electrodes, cold sounds. Enuresis diurna accompanied many of the cases. Hypochondriasis was invariably present, especially marked on those days in which defecation was absent. The chief method used in treatment was the systematic massage of certain parts of the genital regions followed by massage of smaller and larger portions of the entire body. The object is to stimulate the entire vasomotor system increasing the tone of the blood-vessels. The self-reliance of the patient is also favorably influenced by this treatment. The technic is as follows: The patient, lying on his back, has each of his testicles gently manipulated by the operator. Care must be exercised never to grasp either testicle at opposite points, for in that case pain is caused. Then the manipulation gradually extends along the spermatic cord and also along toward the bulb of the urethra, and the perineum. Finally, the inner surface of the thighs is massaged. In various positions of the patient, *i. e.*, while lying on his side or on his abdomen, all these processes are carried out. Then follows massage of the lumbar and sacral regions carried out by means of pummeling with the fist, although not too severely. Then pressure and massage along the occipital, cervical and intercostal nerves follow. In all these manipulations the most time and care are necessary where painful areas are located. It has been found that, after the simplest palpation in the genital regions carried on through a few sittings, the sensitive areas become greatly diminished, and that the atonic condition of the skin which had easily broken out in clammy perspiration before, became sounder and more elastic. The resisting power of the muscles likewise increased. During treatment it is advisable for the patient to abstain from attempts at cohabitation for about six to eight weeks. The patient may exercise by walking, wheeling, swimming and riding horseback. With great nervousness combined with loss of weight, a short while in bed is advantageous. Change of scene is also advisable. Douches every morning with water at the temperature of the room keep the skin in good active condition. In cases of nocturnal pollution it was also found advisable to change the hour of the evening meal and also decrease the quantity of fluids taken before retiring.

THERAPEUTIC HINTS.

Sodium Phosphate in Urticaria.—*Wolff* gives the phosphate of soda internally, every three hours, in doses of sixty to seventy-five grains, or less in infants, to cure urticaria within the space of twenty-four hours. Locally he prescribes at the same time, as a lotion, a mixture often employed in America for eczema:

℞ Calamine Prep. } .....aa 3iss
Zinc Oxidi.... }
Ac. Carbolici..... 3ss
Aquæ Calcis..... 3xv
Aquæ Rosæ..... ℥ivss.
M.

In infants, the quantity of carbolic acid ought to be reduced according to age. In chronic urticaria the phosphate of soda taken after each meal in the dose mentioned causes uniformly a rapid relief, but relapses often occur; indeed, the patients ought to continue the use of this drug until the tendency to relapse has entirely disappeared. Sodium phosphate is particularly efficacious in urticaria of a gastro-intestinal origin, which is often the case.

Bed Treatment of the Acute Psychoses.—*Serieux* and *Farnurier* of Paris warmly advocate rest in bed as being as important in acute mental disease as in any other acute disease. The horizontal position best favors the circulation in the brain and thus aids in overcoming the cerebral and constitutional exhaustion which varies as to cause, but is present in a large proportion of cases. The muscular system is relaxed, the motor centers rested and peripheral stimulation reduced to a minimum, while psychical repose is provided at the same time. When generally adopted, very beneficial results will undoubtedly be reported changing the clinical aspect of various forms of psychoses.

New Local Anesthetic for the Ear.—Aqueous solution of cocaine and eucaine having proved so unsatisfactory when applied to the tympanic membrane as anesthetics, the use of aniline oil and alcohol as vehicles, as first tried by *Albert A. Gray*, should prove a boon to aurist and patient, as paracentesis is stated to be entirely painless five minutes after the anesthetic is employed. Ten drops of the following preparation are injected into the external auditory canal and allowed to flow to the membrane:

℞ Hydrochlorate of cocaine..... 5 parts
Dilute alcohol..... 50 "
Aniline oil..... 50 "

Granulations of the tympanum can also be removed painlessly, first cleansing and drying the parts before using the solution. In case of thickened and hardened membranes the following formula is more effective:

℞ Hydrochlorate of cocaine..... 10 parts
Absolute alcohol..... 30 "
Aniline oil..... 70 "

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SATURDAY, SEPTEMBER 15, 1900.

TROPICAL DISEASES AND OUR NEW POSSESSIONS.

MEDICAL men in the United States, whether connected with the army or navy or not, had practically no knowledge or experience on the subject of tropical diseases or of common diseases occurring under tropical conditions which they were suddenly called on to treat when the United States acquired the Philippines and Porto Rico. The diseases which were prevalent among our soldiers in the Philippines were, in the order of their frequency, diarrhea and dysentery, malarial fevers, typhoid fever, and smallpox. Intestinal affections were the most prevalent and caused the largest number of deaths. Malarial fevers were second in order of frequency, but were not as malignant as it was expected they would be. Typhoid fever came next, after intestinal diseases, as a cause of death. Smallpox prevailed as an epidemic when Manila was first occupied and the troops were promptly infected, but the disease was soon controlled. Of these diseases, diarrhea and dysentery were due largely to the climate, to the heat and rains, and to the lowering of vitality consequent on heat-exhaustion. With care in the matter of diet and with avoidance of exhausting labor in the heat of the day, and of exposure to chill, these diseases should not exist unduly in the Philippine climate, but dysentery in its various forms is there always present. It must be remembered that the troops consisted largely of young men who knew nothing of the requirements of the climate, who were doing arduous work under the most adverse circumstances, and who were "trying" all the new drinks, fruit, etc., of the country. Smallpox and typhoid fever are said by some not to be dependent upon the climatic conditions of the Philippines, but smallpox is endemic among the Filipinos. Pemphigus in Luzon is of frequent occurrence and sometimes is extremely serious. In addition to the above, cholera, beriberi, and the plague are present to a greater or less extent in the Philippines, as well as in the Hawaiian Islands. Leprosy is deeply rooted in the Philippines, while the leper settlement at Molokai in the Hawaiian Islands is well known. These four last mentioned diseases, together with the yellow fever of Cuba and Porto Rico, are those against which the United States must be especially on its guard.

Our possessions in the East are, of course, not as extensive as those of England and other countries, nor have we held them sufficiently long for the medical men stationed there to do much original investigation. England's officers in India have done excellent work, as shown by some of the papers read recently at a meeting of the Section on Tropical Diseases of the British Medical Association, and presented in this week's issue of the MEDICAL NEWS.

The consensus of opinion on the subject of quinine as a prophylactic agent in malaria was that it was of great value except in those localities where the malaria was of a malignant form. Some investigators reported that they found it of no value as a prophylactic. The study of the metamorphosis of the *filaria sanguinis hominis* in mosquitoes and the transmission of the filaria through them while in the act of biting human beings has been carried out by Captain S. P. James of Travancore, India. He has formed the opinion that the Anopheles mosquitoes, rather than the Culex mosquitoes, are the usual efficient hosts of the filariæ. Another parasitic disease, ankylostomiasis, which has been the cause of a high mortality in certain parts of India, has received the attention of Major G. M. Giles, who has studied the life history of the parasite. He has demonstrated that the full life history of the *anchylostoma duodenale* is an example of dimorphism or heterogenesis. This parasite is considered to be the cause of the serious anemia

which is so common in those ports. The anemia is demonstrated to be caused by the presence of great numbers of these parasites which bleed the patient. Among other diseases which received attention were the various forms of abscess of the liver and a disease called yaws which is said to resemble syphilis.

As our business relations with the Philippines increase so will the necessity of thoroughly understanding the prevalent diseases of the tropics, both that they may be treated successfully and that they may be kept out of the United States.

It is incumbent upon the Government to aid the medical men of the army in every way in the study of these tropical diseases and of the treatment of other diseases under tropical conditions. Germany has an institute for the study of tropical diseases at Hamburg, and England has one at Liverpool. The post-graduate course in Tropical Diseases in the Army and Navy Medical School in Washington offers to our own medical corps, which may be detailed to tropical service, just the opportunity needed to enter this widening field of study. Its possibilities are vast, and the energetic young men of the country only need to have their attention directed to what is going to be a serious problem in medicine to prepare themselves adequately for the future. The more money that the American Government can appropriate now for investigation and for medical training along these lines, the greater will be the safety of her soldiers and merchants abroad and her citizens at home.

THE HAND AND THE GERM.

LITTLE by little the apparent invincibility of the micro-organism has been shown to be a superstitious fallacy and the ubiquitous pus and infection producers have been ousted from one after another of their microscopic strongholds. After the uncertain reign of the carbolic spray, unreliable in its results and cumbersome and disagreeable to use, the simple application of heat, moist and sufficiently prolonged, has shown itself adequate to absolutely ensure the sterility of instruments and dressings, while that almost impregnable nidus for germs, the catgut suture, yields to the cumol disinfection without losing any of its virtue. And now a practicable method has been published (Katzenstein, *Centralbl. f. Chir.*, July 14, 1900) which makes it possible to efficiently sterilize the almost hopelessly delicate silk and lisle thread catheter without impairing either its finish or vitality.

But however much has been accomplished, the bacteriological battle still goes fiercely on in another quarter and the surgical strategist finds that in his own person his microscopic foes occupy a last citadel from which it is well nigh impossible to dislodge them. The very diversity of the different methods of hand-disinfection in use, Kelly's Weir's Ahlfeld's, Fürbringer's, Mikulicz's, gloves of cotton, leather and rubber, the wax and paraffin coatings of Schleich and Menge, sufficiently evidences the inefficiency of each.

In considering the technic of the various means of chemical sterilization, in which the in the proposals of Mikulicz, Schleich and Säng- subjected to a more or less prolonged immersion in disinfecting fluids, it is interesting to note the prominent rôle in the process ascribed to alcohol which is supposed to be a valuable synergist either through its fat-dissolving power or directly as a germicide. That both these views are erroneous, however, is well shown by Braatz (*Münch. med. Wochenschr.*, July 17, 1900) who calls attention to the fact that alcohol is really a very poor solvent for human skin-fat, 100 gm. dissolving only 0.07739 gm. in seventy hours; while many other substances that surpass it in germicidal power are practically less efficacious, and he attributes its value solely to its faculty of penetrating readily into the minutest furrows and interstices and then by its affinity for water facilitating the subsequent entry of aqueous antiseptic solutions.

The tendency to replace chemical disinfection by thorough mechanical cleansing is prominent in the proposals of Mikulicz, Schleich and Sänger. The former advocates simply protracted scrubbing with an alcoholic solution of green soap; Sänger has devised a soap of great mechanical efficacy on account of the sand incorporated in it, while Schleich's preparation, having resin soap as a basis and marble-dust as a detergent, contains a mixture of wax and paraffin pastes which is supposed to form an impregnable coating over the skin after the mechanical cleansing has been effected by the other constituents. In connection with these it is instructive to note the results of the experimental researches conducted independently by König and Blumberg (*Münch. med. Wochenschr.*, July 24, 1900), and Paul and Sarway (*Münch. med. Wochenschr.*, July 31, 1900) which establish

definitely the fact that more of the purely mechanical means are to be depended on to sterilize even artificially infected hands, and that of the chemical methods those having a mercury salt as prime agent are probably the most effective. The former authors strongly advocate the use of an aqueous 3-1000 mercury ethylendiamin citrate solution in place of the customary bichloride, as being less injurious to the skin and having greater penetrating power.

Haeger (Händereinigung, etc., Basle, 1900), in his discussion of gloves utterly condemns those of cotton, for the operator's use, and relegates them to the attendants, orderlies and nurses for whom they ensure a relative sterility. Leather gloves previously soaked in antiseptic solutions are much more reliable and for the first fifteen minutes are sufficiently impermeable to germs to be used with safety. Rubber gloves come nearer to the mark, but still are open to the danger of accidental rips and impede the operator to a degree depending on the perfection with which the natural conformation of his hand adapts itself to the conventional sizes supplied and hence also fall short of the ideal of combining absolute security with wholly unrestricted movement and tactile sense. The various coatings, paraffin, gutta-percha, etc., are totally unreliable and not adapted to general use.

A review of the results obtained in this field leads but to one conclusion, that no matter how carefully we sterilize our instruments and dressings, by neither mechanical nor chemical means can we bring our hands into a sufficiently germ-free state to promise ourselves immunity from infection, and the only other method at command, that of wearing gloves, is also far from perfect, owing to the demands of operative technic, for the thinner and less hampering they are the greater is the risk of tearing. Under these conditions the only remedy seems to lie in the most scrupulous avoidance of contact with infectious material rather than in any reliance on methods of subsequent disinfection. The prophylaxis involves two factors: one, the habitual use of gloves whenever suspected material is to be touched, and the other, the immediate vigorous cleansing of the hands when accidentally infected while still moist and before there has been time for the deeper layers to be invaded by the germs. This includes also the most careful toilet of the hands. A rough, chapped and abraded cutaneous surface defies the most persistent efforts at cleansing and the effect of the daily use of harsh alkali soaps and immersion in bichloride solution is to be counteracted only by a regular treatment with suitable emollients.

Inspired by a delusive optimism the surgeon has long been working in the hope of finding some agent powerful enough to be absolutely fatal to the germ and yet leave the skin intact, an *ignis fatuus*, for the requirement postulates the ability to precipitate albumin and the superficial epidermal cells must inevitably fall a prey long before the deeper-seated organisms are reached. The time has apparently come when we must acknowledge that further search for antiseptic combinations for hand-disinfection is fruitless and that innovations in technic are hardly to be counted on to bring much improvement. Through its inherent characteristics the hand cannot be either temporarily or permanently freed from its germs, for no matter how scientifically planned and carefully executed the mechanical cleansing, nor how energetic the chemical germicide, there will still remain countless numbers of micro-organisms snugly ensconced in inaccessible hiding-places. Under no other circumstances is prevention so infinitely better than cure, and it is only in the direction of constant and unremitting attention to prophylaxis that a nearer approach to the ideal is to be hoped for.

ECHOES AND NEWS.

NEW YORK.

Yellow Fever at New York.—The "MacClellan" from Havana brought one case of yellow fever to New York this week. The patient was transferred to Swinburne Island.

State Hospital for Tuberculosis.—The Commission of State Prisons at its recent annual meeting adopted the report of Commissioner Mantanye recommending Dannemora as the site for the erection of the State Hospital for Consumptives, and will urge the Hospital Commission to act favorably upon the recommendations contained in the report.

Sued by his Doctor.—Dr. R. H. Greene of this city is suing W. G. Newman, a prominent promoter, for $1200 said to be due him.

Woman's Medical Fraternity.—During the past year, the women of Syracuse University, College of Medicine, have organized Zeta Phi, the first and only women's medical fraternity in this country. They esteem it an honor that Dr. Eliz-

abeth Blackwell has consented to become a charter member, she having been graduated from this college and the first woman to receive the degree of M.D. in America. The purpose of the fraternity is to bring the women of the medical profession into closer touch with one another.

Typhoid in Women's Hospital in Syracuse.—The annual epidemic of typhoid fever has broken out in the State Custodial Asylum for Feeble-Minded Women at Syracuse and twelve persons are down with the fever, including the resident physician.

New Dispensary for St. Batholomew's.—A six-story building, to be occupied as a dispensary, will be erected by the St. Bartholomew's Church Corporation, at 215 and 217 East Forty-second Street, a plot 50 by 92, adjoining the church's present mission house. The cost of the new building is estimated at $200,000.

Four New Electric Ambulances.—Four automobile or electric ambulances are now building for private hospitals in this city. The Roosevelt, Presbyterian and New York Hospitals are making the experiment. St. Vincent's Hospital has had an electric machine for several months. The new gifts to Roosevelt are 7 feet 6 inches long, which is about eighteen inches longer than the ordinary horse-drawn ambulance, and weigh 4800 pounds each.

Rewards of Lawyers.—A distinguished lawyer in this city, in a recent number of the *New York Law Journal*, published some interesting statistics of the practice of law in New York. The practice of criminal law is not considered in his statistics. Taking the last July calendar of the Supreme Court in the First Department this investigator finds that there were 11,230 cases on it which were divided among 2190 lawyers or firms. Nearly 1000 of these lawyers had only one case and more than 2000 of them did not have as many as six cases to try in a year. His figures show that only five law firms in this city had more than 100 cases, and among these five were found only one of the great law firms of twenty-five years ago. Of these five firms three represent large corporations which, from the nature of their business, necessarily have many cases in court. The great law firms of other days have not held their own in this branch of the profession. The bulk of court work has passed into other hands and they are fast becoming firms of solicitors. From the statistics published it is shown that 21 lawyers had upward of 50 cases, 60 lawyers had upward of 20 cases and 104 lawyers had from 10 to 20 cases. The writer suggests that time is sure to bring about a more marked division than now between lawyers who try cases and those who do not, and he believes that the former will ultimately be recognized as a class of advocates. He says: "The average income of men of our profession does not equal $5000 a year. An advocate who could earn $100 a week trying cases would earn the average income of the profession." He makes no mention of what the lawyers make "on the outside."

PHILADELPHIA.

Smallpox in Pennsylvania.—Smallpox still persists in western sections of the State. The schools and Sunday-schools in Erie have been closed because of an epidemic of the disease.

Many Pharmacists Fail.—At a recent examination held by the State Pharmaceutical Board there were 53 candidates for license as regular pharmacist and 42 as qualified assistant. Of the first number only 14 were successful and of the latter only 20 received a license.

Impure-Food Dealers Prosecuted.—The courts are dealing summarily with the above class of venders, four out of sixteen cases being disposed of by pleas of guilty or by conviction. The articles include butter, milk, and flavoring syrups.

Physician Unjustly Censured.—The body of a child dead of diphtheria lay by an open window for fifteen hours in a house on Annin Street, the house not being placarded. The family physician, Dr. Nebeker, was censured by the Board of Health for delay in notification. An investigation showed that the delay was due to the post-office failing to properly deliver the letter of notification mailed by the physician, thus exonerating him from all blame.

Extension of Maternity Home.—An amendment to the charter of the Jewish Maternity Association, lately granted by the courts, allows of an enlargement of the Society's work. A gynecological ward and operating-room will be added, these being urgently required by the institution to care for the increased number of patients applying.

Philanthropic Physician's Bequests.—Dr. Detweiler, of Reading, who died recently, disposes by will of a large property. Having a large income from other property the doctor had for the last fifteen years given the entire income from his medical practice to charity.

A New Healer of the Blind.—Mr. H. N. Casson, who is said to hail from New York City, is preparing to heal the blind population of this staid Quaker hamlet. He dispenses two medicines, the "brown" and the "green," and talks glibly to reporters. It is stated that an offer to treat the inmates of the Pennsylvania Industrial Home for Blind Men was promptly refused by the Superintendent of that institution.

Water Filtration.—The experimental filter plant at the Spring Garden Pumping Station was put in operation September 6th in the presence of the mayor and other city officials. Chemical and bacteriological tests of the filtered water and of the various filtering materials will follow. It is earnestly hoped that this marks the beginning of the end of Philadelphia's notoriously un-

healthy water-supply. The public-school buildings of the city have been equipped with filters during the summer.

Case of Filaria Sanguinis Hominis.—An interesting case of filaria, the second case met with in this city, is now at the Pennsylvania Hospital. The patient is a sailor from the West Indies, twenty-two years of age, recently operated upon by Dr. John H. Gibbon. The filariæ were found in large numbers and were confined to the lymphatics of the spermatic cord, the scrotum not being involved.

CHICAGO.

The Bacillus.—This is the name of a new monthly periodical published under the auspices of the Illinois Medical College. Its editor is Dr. Fred. C. Zapffe.

Dr. Murphy's Place Filled.—Dr. Alexander H. Ferguson has accepted the Chair of Surgery and Physical Surgery in the Chicago College of Physicians and Surgeons, recently vacated by Dr. J. B. Murphy.

Evanston Hospital—The endowment fund of this institution is rapidly increasing, $25,000 having already been subscribed. Before the remodeling can be completed and the desired contagious disease ward constructed, the directors need $20,000 more.

Pure-Food Law.—This law is not clearly understood by the laity. It is intended to protect the buyers against imposition. If a person wishes to buy oleomargarine for butter, chickory for coffee, or dilute acid for vinegar, he is at liberty to do so, but the law stipulates that such articles shall be labeled. The work of the Illinois Pure-Food Commission should be commended.

American Academy of Railway Surgeons.—The Seventh Annual Meeting of the Academy was held in the State Senate Chamber, St. Paul, Minnesota, September 5th and 6th, under the Presidency of Dr. Charles A. Wheaton, of St. Paul. Fifteen papers were read and freely discussed. There were twenty new Fellows elected. The officers for the ensuing years are: President, Dr. D. S. Fairchild of Clinton, Ia.; First Vice-President, Dr. W. L. Estes of South Bethlehem, Pa.; Second Vice-President, Dr. W. J. Mayo of Rochester, Minn.; Secretary, Treasurer and Editor, Dr. T. B. Lacey of Council Bluffs, Ia. Chicago was selected as the place for holding the next annual meeting, the date to be fixed by the Executive Board.

Northwestern University Medical School.—Dr. John B. Murphy has accepted a professorship in Surgery and Clinical Surgery in the Northwestern University Medical School, Chicago Medical College. Dr. Murphy has been appointed Surgeon-in-Chief of Mercy Hospital with the direction of the surgical teaching in that hospital. He will give two clinics each week at the hospital. The hospital now contains 260 beds with abundance of clinical material. A new amphitheater with a seating capacity of 300 is in progress of construction. Dr. Archibald Church has been recently appointed Professor of Nervous and Mental Diseases in Northwestern University Medical School, Chicago Medical College and head of the Neurological Department.

GENERAL.

Obituary—At Hackensack, N. J., September 8, 1900, Dr. William A. Hillebrecht in his twenty-seventh year.

Poison in Glazed Wares.—A Frankfort newspaper calls attention to the fact that for some time past certain kinds of silver-mounted glass and porcelain wares, such as cups, glasses, jars, vases, etc., have been placed upon the market. The silver on these articles is applied by means of a galvanoplastic process, in baths which contain very large quantities of potassium cyanide. As glazed wares have innumerable hairlike cracks, this deadly poison enters these cracks, and the articles, beautiful to look at, become a severe menace to the health of anybody using or handling them, and especially as it is impossible in the course of manufacture to remove this poisonous residuum. Only a short time ago a very severe case of poisoning resulted from the use of such ware. These goods are chiefly exported to the United States from Frankfort, Berlin and Stuttgart.

Diphtheria from the Horse.—Dr. L. Cobbett reports, in a recent number of the London *Lancet*, the finding of a bacillus, closely identified with Loeffler's diphtheria bacillus, in the secretions of a horse. Dr. Fraser, health officer of Portsmouth, attended a little girl with diphtheria and found, on looking for the cause of the disease, that a pony of her father's was ill with a purulent and bloody discharge from the nose. The toxic action of the isolated bacillus was similar to that of Loeffler's bacillus and its toxin, from culture, behaved as does the toxin of this microorganism. This discovery serves to point out another source of infection for diphtheria and also offer some interesting side-lights on the subject of antitoxins.

Havana's Yellow Fever Problem.—Governor-General Wood has appointed a board of immigration consisting of Drs. Gorgas and Havard and two Cuban physicians to draw up resolutions concerning immigrants. Since July, 1899, 26,000 immigrants have arrived in Havana and 10,000 are expected during the next two months. There were fifty deaths from yellow fever in Havana during the month of August. While the general health of the city is better than ever before, there is a comparatively large number of cases of yellow fever. Owing to the large number of immigrants this is unavoidable. Seventy-five per cent. of the total number of cases were among immigrants who had been in Havana less than a

year. The municipality will consider the advisability of raising money for the sanitation of the city.

Hydrophobia Scare.—The mayor of Wheeling, W. Va., has issued a proclamation taking effect September 3d that all dogs must be confined or muzzled. Two deaths from hydrophobia have occurred and it is hoped that a panic, such as was created four years ago in that city, when many people were bitten and a number died, may be averted.

St. Louis City Hospital Alumni.—This Society met September 6th. Drs. G. Campbell and C. Loeb read papers.

Southern Surgical and Gynecological Association.—The meeting of this Association will be held in Atlanta, November 13th, 14th, and 15th, under the presidency of Dr. A. M. Cartledge of Louisville. Members of the medical profession are cordially invited to attend.

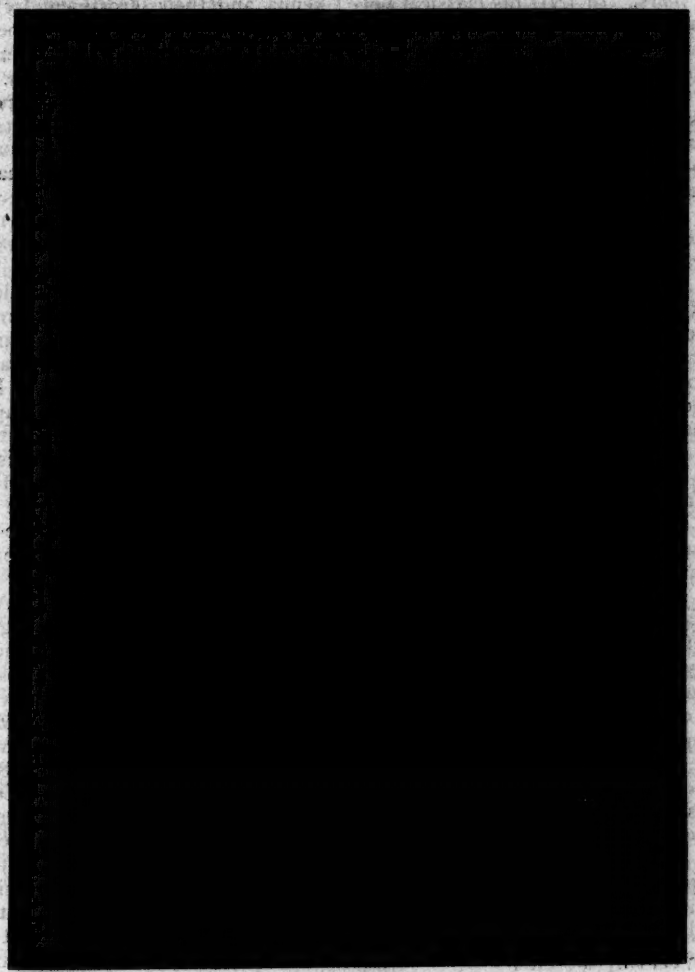
The Galveston Disaster.—Latest reports from Galveston show that the extent of the hurricane was more widespread than at first thought. The number of deaths will probably reach 5000. Of these some are physicians of the city. Those who were uninjured are overtaxed with the amount of medical and surgical work which is necessary to be done. The greatest danger that could happen to Galveston and the United States is the outbreak of yellow fever in the afflicted city. The Government has already sent Health Officers to try to avoid such a contingency.

The Plague.—Recent reports of the plague situation at Glasgow are assuring. New cases are being reported each day, yet they are occurring singly and among those under the observation of the Health Officers of the city. At the present time about twenty cases have been isolated and 150 persons are under strict surveillance.

In India the plague situation remains much the same. This week's reports confirm those of last week, and tend to show that with both plague and famine, India's people, in certain provinces, are suffering greatly. It is reported that the mortality from the plague is at least 1000 a week. The Red Cross and other relief societies are ministering to some 3,000,000 people.

Doctors for the Navy.—A naval medical board of examiners for examination of candidates for admission to the medical corps of the navy is now in session at the Naval Laboratory, Brooklyn, N. Y., and will remain in session for several months. There are now seventeen vacancies in the list of assistant surgeons. Congress at its last session passed a law taking assistant surgeons out of the steerage and making them ward-room officers as soon as they enter the service, giving them the rank of junior lieutenants and the pay of assistant surgeons in the army. Candidates must be between the ages of twenty-one and thirty. Circular of information can be obtained on application to the Surgeon-General of the Navy, Navy Department.

Gynecologists and Obstetricians.—The thirteenth annual meeting of the American Association of Obstetricians and Gynecologists is to be held in Louisville, Ky., Tuesday, Wednesday and Thursday, September 18, 19 and 20, 1900. The presidential address will be delivered by Dr. Rufus B. Hall of Cincinnati. The following papers are announced: "Erroneous Objections to Bilateral Inguinal Celiotomy," by Dr. A. Goldspohn of Chicago; "Round Ligament Ventrosuspension of the Uterus," by Dr. D. Tod Gilliam of Columbus; "A Satisfactory Method of Suspension of the Uterus," by Dr. Robert Morris of New York; "Occasional Incidents in Abdominal Surgery," by Dr. W. H. Myers of Fort Wayne; "Dermoid Cysts Complicating Pregnancy, by Dr. I. S. Pastman of Indianapolis; "Teratoma of Ovary," by Dr. W. E. B. Davis of Birmingham; "Treatment of Chronic Cystitis," by Dr. Charles G. Cumston of Boston; "Perforated Gastric Ulcer," by Dr. Henry Howitt of Guelph; "Malignant Disease of Pelvic Organs," by Dr. A. P. Clarke of Cambridge; "Cholethiasis," by Dr. H. E. Hayd of Buffalo; "Surgery of Gall-Bladder," by Dr. A. Vander Veer of Albany; "Surgery of Liver and Bile-Duct," by Dr. W. G. Macdonald of Albany; "Jaundice Following Abdominal Section," by Dr. H. D. Ingraham of Buffalo; "Diagnosis of Ectopic Pregnancy," by Dr. J. F. Baldwin of Columbus; "Extra-uterine Pregnancy," by Dr. W. B. Dorsett of St. Louis; "Papilloma of the Vulva," by Dr. E. J. Ill of Newark; "The Hymen and Virginity," by Dr. J. M. Duff of Pittsburg; "Private Hospitals and Their Management," by Dr. Joseph Price of Philadelphia; "Extirpation of the Rectum and Sigmoid per Vaginam," by Dr. John B. Murphy of Chicago; "Post-rectal Tumors," by Dr. J. F. W. Ross of Toronto; "Ovarian Fibroma," by Dr. L. H. Laidley of St. Louis; "Rubber Gloves in Surgery," by Dr. C. C. Frederick of Buffalo; "The Ligature and Dry Sterilized Catgut," by Dr. J. H. Carstens of Detroit; "Contraindications to Intraperitoneal Use of Normal Salt Solution After Laparotomy," by Dr. Frank F. Simpson of Pittsburg; "Simple Methods in Pelvic Surgery," by Dr. J. B. Deaver of Philadelphia; "Treatment of Fibroids in Non-Pregnant Uterus," by Dr. E. F. Fish of Milwaukee; "Acute Senile Endometritis," by Dr. L. H. Dunning of Indianapolis; "Tubo-ovarian Abscess," by Dr. E. Ricketts of Cincinnati; "Difficult and Obscure Pus Cases," by Dr. W. B. Chase of New York; "Discussion of Pelvic Suppurations," by Dr. Joseph Price of Philadelphia. Other papers are announced to be read by Drs. M. Rosenwasser of Cleveland, C. A. L. Reed of Cincinnati, H. W. Longyear of Detroit, W. P. Manton of Detroit, F. Blume of Pittsburg and L. S. McMurtry of Louisville.



JACOB M. DA COSTA, M.D., LL.D.

OBITUARY.

DR. JACOB M. DA COSTA.

THE world of medical science loses one of its greatest lights in Dr. Da Costa of Philadelphia, who died suddenly September 12th at his country home, Ashwood, Villanova, from a heart trouble of some years' duration.

Dr. Da Costa was born in St. Thomas, West Indies, February 7, 1833. He was thus sixty-seven years of age. His education as a boy and college student was received in Germany. His medical training was obtained in the Jefferson Medical College, where Dr. Mutter was his preceptor. He graduated at the early age of nineteen, presenting as his thesis a study on Epithelial Tumors and Cancer of the Neck. He then spent two years in the schools and hospitals of Paris and Vienna, entering practice in Philadelphia on his return.

In 1864 Dr. Da Costa was appointed lecturer on clinical medicine at the Jefferson Medical College and in 1872 was chosen to occupy the chair of Theory and Practice of Medicine left vacant by the death of Professor Dickson. He continued to teach for more than twenty years, resigning this chair several years ago to occupy that of Practice of Medicine and Clinical Medicine. For the past few years he has been Professor Emeritus of Practice of Medicine and Clinical Medicine.

Dr. Da Costa's great skill in physical diagnosis was gained in his lifelong work at the Episcopal, Philadelphia and Pennsylvania Hospitals, and from their wards he has contributed much to the advancement of medical science. In 1855 he published his studies on the "Pathology of Acute Pneumonia," and in 1857, the "Physicians of the Last Century," an interesting historical study, appeared. Investigations on "Cancer of the Pancreas" and "Serous Apoplexy" followed in the

succeeding two years. In 1864 his classical volume on "Medical Diagnosis" was put forth. This has continued one of the standard works on the subject, now just appearing in its ninth edition. Numerous shorter contributions from his pen have been published in most of the prominent medical journals of the country.

In the field of the natural sciences closely related to medicine Dr. Da Costa was an enthusiastic worker. He joined the Academy of Natural Sciences of Philadelphia the year of his graduation, working with such masters as Leidy and Cope. He was also a member of the American Academy of Arts and Sciences and the American Philosophical Society. He became a member of the American Medical Association in 1855. As a diagnostician and as an interpreter of the physical signs of disease Dr. Da Costa had a world wide reputation. His private practice was very large and his many interests made him a prominent and honored member of the profession. Not Philadelphia alone but the whole medical world will miss him.

Dr. Da Costa was a facile and accomplished public speaker and was unsurpassed in his special department as a clinical lecturer. His subject was systematically arranged in his mind and in his method of diagnosis by exclusion he would take up each hypothesis and weigh the evidence carefully *pro* and *con*, finally leading the discussion up to the culmination in the elaboration of the actual diagnosis in a manner that riveted the attention of the class, the students giving every evidence of interest and gratification by crowding to his lecture-hall. His language was always well chosen and he never hesitated for the correct word. He was a student of correct diction, and both in his lectures and in his writings showed his familiarity with the English classics. He also showed his wide extent of medical reading by references to French and German authorities, and, as a consultant as well as clinical teacher, he demonstrated the fact that he kept himself well posted in the current literature of his profession. His monograph upon "Harvey and the Discovery of the Circulation of the Blood" also gave evidence of his studies in the literature of an earlier day in medicine.

As his clinical lectures were much sought after he was frequently annoyed by unauthorized reports which were made of his lectures, and which abounded in infelicities of expression or actual errors, which he had no opportunity of correcting. Thus in the last volume of the "Index Medicus" there are sixteen titles of articles ascribed to him, of which at least two-thirds were unauthorized. But this is one of the things that most clinical teachers suffer from and is probably unavoidable. Among his contributions to medical literature not already noted are the following: Inhalation in the Treatment of Diseases of the Respiratory Passages, 1866: On Quinoidine in the Treatment of Intermittent Fever, 1855; A Case of Cerebral Neuralgia Terminating Fatally by Serous Apoplexy, 1859; Cases of Splenic Leukemia and their Treatment by Hypodermic Injections of Ergotin, 1875; Diabetes Insipidus and Its Treatment by Ergot, 1875; Observations on the Action of Narcein (Penna. Hosp. Reports), 1868; Certain Forms of Muscular Rheumatism, Particularly Wry Neck, and Its Treatment (Pa. Hosp. Reports), 1868; A Contribution to the Therapeutics of Acute Rheumatism, based on a Series of Cases Treated with Bromide of Ammonium (Pa. Hosp. Reports), 1869; Remarks on Relapses in Typhoid Fever, 1877; Harvey and His Discovery, 1878; Cases of Starvation Fever, 1879; The Fluorides in Medicine, 1881; The Nervous Symptoms of Lithemia, 1881; Some Points in the Pathology of Tubercle, 1882; On Catarrhal Fever, 1893; Observations on the Salts of Nickel, 1883; The Higher Professional Life, 1883; In Memoriam, Biographical Sketch of Samuel D. Gross, read before the Association of American Physicians, 1884; Diseases of the Pericardium (in Pepper's System of Medicine), 1885; Some Observations in the Use of Hydrochlorate of Cocaine, Especially its Hypodermic Use, 1886; Remarks on the Treatment of Rose Cold and Hay Fever by Cocaine, 1886; Address of Welcome to the Newly Elected Associate Fellows, Centennial Celebration College of Physicians, 1887; The Methods of Medicine in the Near Present, 1887; Biographical Sketch of Dr. Austin Flint, 1887; Address at the Dinner Given to Dr. D. Hayes Agnew by the Medical Profession in Honor of the Fiftieth Anniversary of his Entrance into the Profession, 1888; Researches on the State of the Ganglionic Centers in Bright's Disease (in cooperation with Dr. M. Longstreth), 1880; Relation of the Diseases of the Kidney, Especially Bright's Disease, to the Diseases of the Heart; the Middleton Goldsmith Lecture delivered before the New York Pathological Society, April 18, 1888; the Treatment of Valvular Disease of the Heart, 1888; Professional Aspirations, Valedictory Address, 1891; Functional Disorders of the Heart (Cyclopedia of Diseases of Children, Keating), 1891; Malarial Paralysis, 1891; The Pulmonary Complications of Influenza, 1892; Address before the Harvard Alumni Association, 1893; The Albuminuria and the Bright's Disease of Uric Acid and of Oxaluria, 1893; Rheumatism (article in Am. Text Book of Dis. of Children, Starr), 1894; Cardiac Asthma —Relations to Heart Exhaustion, 1894; The Coexistence of Typhoid and Malarial Infection, 1897; On the Significance of Jaundice in Typhoid and on its Hepatic Complication without Jaundice, 1898; Phlegmasia Alba Dolens, or Phlebitis of the Leg in Pneumonia, 1898; An Interesting Case of Cholecystitis Simulating Appendicitis, 1899; Anomalous Eruptions in Typhoid Fever, 1899; A Case of Typhoid Cholecystitis Ending in Recovery, 1899; Rapidly Recurring Hemiplegia in Acute Lead Poisoning, 1897.

Dr. Da Costa was a widower, his wife having died seventeen years ago. One son, a member of the Philadelphia bar, survives him.

CORRESPONDENCE.

OUR LONDON LETTER.

[From Our Special Correspondent.]

LONDON, September 1, 1900.

THE QUARREL BETWEEN THE BOARD AND STAFF OF THE NATIONAL HOSPITAL FOR THE PARALYZED AND EPILEPTIC—UNYIELDING ATTITUDE OF THE BOARD—LEAD-POISONING IN THE POTTERIES—PROPOSED NEW GOVERNMENT RULES—THE MALARIAL EXPEDITION OF THE LIVERPOOL TROPICAL SCHOOL—DISCOVERY THAT ELEPHANTIASIS IS DUE TO MOSQUITO BITES FROM INOCULATION OF THE FILARIA—BRITISH MEDICAL ASSOCIATION—TREATMENT OF FRACTURES—EARLY USE OF MASSAGE AND PASSIVE MOVEMENT ADVOCATED—INSANITY IN LEAD-WORKERS.

THE differences between the staff and the board of management of the National Hospital for the Paralyzed and Epileptic to which I referred in a previous letter are no nearer a solution. The board have taken up an absolutely unjustifiable and unyielding attitude. A meeting of the governors and subscribers has been held to consider (1) whether the demand of the staff for direct representation on the board should be granted and (2) whether it is desirable to hold further inquiry into the condition of the hospital. The chairman argued that as it was possible that the conduct of members of the staff might come before the board for inquiry it would be improper that they should sit in judgment on themselves. Of course the answer to this is the occasion on which the conduct of any of the staff required inquiry must be insignificant compared with those in which they can furnish valuable assistance in the deliberations of the board, and it would be easy to make a rule excluding a medical officer from any deliberation on his conduct. Curiously this very board which is accused of mismanagement by the staff appointed a subcommittee to report on these charges and therefore sees no anomaly in sitting in judgment on itself while denying its medical officers not this power—for they modestly ask for only two seats on the board—but the slightest voice in the management of the hospital. Sir Henry Burdett, who is a well known authority on hospital management, commended the plan of St. Thomas', the Middlesex, the Brompton, and the London Hospitals, in which there is a medical committee consisting of the staff and two members of the board of management. He went on to add that, having paid the hospital a visit in the company of the Hon. Sydney Holland, the Chairman of the London Hospital, there could be no question that the arrangements were excellent.

But neither of these gentlemen nor any other layman, however experienced in hospital management, is competent to give an opinion on the charges made by the staff. These are specific allegations of mismanagement, such as insufficient feeding of the patients and deficient supply of nurses. These conditions could never have arisen if they had a voice in the management of the institution. Something more than the board's exculpation of itself is required. If it persists in its unyielding attitude it will not be able, at any rate, to resist the demand for an independent inquiry which the staff now demands. But such should not be necessary. Who are the proper judges as to the sufficiency of the nursing and diet—a number of laymen or probably the most distinguished medical staff that ever gave its services to a hospital?

The cases of lead-poisoning which have occurred in the potteries have aroused widespread attention and even fashionable women, such as the Duchess of Sutherland, have joined in the agitation for preventive measures. The Home Secretary has prepared a draft of amended rules for china and earthenware manufacturers which have been submitted to employers for their consideration prior to formal service. The first requires that the lead must be "fritted"—a process that renders it much less injurious and which can be performed without serious detriment or inconvenience. Rule 2 is that "After July 2, 1902, no material containing lead which yields to a dilute solution of hydrochloric acid more than two per cent. of its dry weight of a soluble lead compound, calculated as lead monoxide, shall be used in any place or process included in Rule 1. The manufacturers think that these rules will seriously cripple them, particularly the second, in competition with foreign manufacturers subject to no such restrictions, and suggest as an alternative the use of dilute sulphuric acid by the workers, which is largely used in Germany, where lead-poisoning is said to be unknown.

The second malarial expedition of the Liverpool School of Tropical Medicine has telegraphed home a most important discovery from Bonny in Nigeria, *viz.*, that they have discovered the filaria which causes elephantiasis in the proboscis of the mosquito. The same discovery appears to have been simultaneously made by Dr. Low in England in mosquitoes brought from Australia, and by Captain Janes in India. The fact that the filaria can live in the mosquito has long been known and Dr. Manson some years ago propounded a theory as to the part played by the mosquito in the life cycle of *filaria nocturna*, but not that the insect directly conveyed the disease.

At the meeting of the British Medical Association Mr. W. H. Bennett read an exceedingly important paper on the treatment of fractures, advocating methods which completely revolutionize current practices. He wrote to a large number of surgeons in England inquiring as to their practice and received about 300 replies. Up to recently passive movement was never used until a late stage; now there is a distinct tendency to discard splints which do not allow of passive movements. Passive movements used within the first two days may be spoken of as "immediate;" from two to four days after fracture, as "intermediate;" after fourteen days, as "remote." Those surgeons who used movements early got

the quickest recoveries. There is a general tendency to the disuse of plaster-of-Paris splints, as these tend to cause slow union and prolonged disability. Nearly half the surgeons who replied had no experience with operative treatment for simple fractures. The risks of wiring the patella are by no means small and do not seem to depend on the method used. Out of 111 surgeons who replied on this point 3 had had fatal cases, 8 had had to amputate, 16 had had suppuration with ankylosis, 5 had had refracture, or cutting of the wire through the bone during attempts at movement, 10 had had recurrent arthritis. Mr. Bennett considered that in fracture of the patella operation could not be looked upon as ideal treatment and that in the future a rational method would be adopted with early splinting and early movement for all cases in which there was an interval of ½ or ¾ inch, while an operation would be performed in cases of wide separation. As to the early use of massage and passive movement those who tried it are much in favor of it and the opposition is merely theoretical. It is the treatment of the future.

Dr. Robert Jones (Claybury Asylum) read a paper on insanity in lead-workers. Out of 1050 male patients at the Claybury Asylum 35 owed their condition to lead-poisoning. The occupations of the patients were painters, glaziers, plumbers, gilders, electro-plate workers, smelters and pottery glazers. The greatest danger prevailed among those engaged in white and orange lead factories; fine particles of the "dust" containing carbonates and oxides were inhaled from the furnaces. In spite of many Factory Acts a considerable number of cases of lead-poisoning occur yearly, frequently from the carelessness of the workers. The symptoms of lead encephalopathy in 19 patients were varied and included blindness (often of sudden onset), attacks of partial paralysis, epileptic or hysterical fits, mania, melancholia, delirium, apathy and dementia. Some of the cases exhibited symptoms like those of general paralysis of the insane. Headache and loss of memory were not uncommon, as well as auditory and visual hallucinations, and delusions of persecution. Epileptic fits occurred in 7 out of the 19 cases. Treatment consisted in administration of abundant proteids, milk, eggs, open air exercise, electric baths, galvanism, and aperients. The majority of the cases improved under this treatment.

TRANSACTIONS OF FOREIGN SOCIETIES.

German.

CHRONIC INTUSSUSCEPTION—MULTIPLE MYELOCYSTOCELE—TUBERCULOSIS OF THE JOINTS—ANEURISM OF THE ARCH—ESOPHAGOSCOPY—CONGENITAL HIP DISLOCATION—TABES DORSALIS IN CHILDREN—VACCINE INFECTION OF THE EYES—GALL-STONES—ETIOLOGY OF CANCER—UTERINE RUPTURE.

ENDERLEIN, at the Aerztlicher Verein in Nürnberg described the features of a case of chronic intussusception and showed the post-mortem preparation. A two-and-a-half-year-old boy had been suddenly attacked late in March by colic in upper part of the epigastrium and by mucous stools alternating with bloody and normal movements. August 2d when admitted an almost transversely placed tumor was palpable in the left epigastrium, which traveled slowly down the descending colon, became again almost transverse at the left Poupart ligament and two months later prolapsed through the anus. At the point of the prolapse was a valve-like projection, with small lumen admitting at once into the intestinal canal from which normal evacuations had occurred the day before. The invagination began at about the middle of the transverse colon and extended to the anus. The outer sheath presented several constrictions which were the origin of secondary intussusceptions. A sharp bend over the brim of the true pelvis was the seat of several pressure perforations. Much thickening of the bowel was present and the inner surfaces adherent for sixteen centimeters. The ileocecal valve had wandered through the colon from one end to the other within seven months and the prolapsed portion contained the ileocecal valve and partially inverted appendix.

Multiple myelocystocele was presented by another specimen which he brought before the same meeting. A seven-months-old female child had come under treatment for edema and swelling of the abdomen; it was still nursing, hence ambulatory treatment was necessary; no fever; *per rectum* a large cystic, navel-high mass was made out. At the autopsy the following facts were elicited: The tumor was a much hypertrophied bladder; behind this an apple-sized, smooth-walled, elastic cyst between the rectum and the sacrum and coccyx, pressing alike on the bladder and ureters causing hypertrophy, dilatation and hydronephrosis; closely adherent to those bones without a definite septum between, clear fluid contents, numerous connective-tissue septa and many daughter-cysts identically like the parent in character, especially grouped about the lower pole; neuroglia and very many axis cylinders in the walls; single-layer cylindrical epithelial lining. The nature of the condition was a cystocele derived by construction during embryonal life from the spinal cord, especially the central canal. The multiplication of the daughter-cysts, very like ovarian growths, is an exceedingly rare condition.

ROSENBERGER, at the Aerztlicher Bezirksverein, Würzburg, May 1, 1900, said that too often today we are prone to ascribe to tuberculosis any joint lesion at all obscure, especially in the presence of a history of the disease, immediate or remote. But many other factors may be at work. An acute or old infectious inflammation may create an osseous or periosteal focus which, although quiescent for years, may suddenly be kindled by some external cause. He cited a case of a woman who for eight years had undergone all known surgical treatment of joint tuber-

culosis except resection. When he saw her the diagnosis of syphilis was made from the wide, deeply drawn, shining, radiating, knotted scars; from the presence of two gummatous swellings of recent and, apparently to superficial investigation, of inflammatory origin; from the entirely satisfactory general condition of the patient, notwithstanding her long history, and from the absence of ankylosis in the joint, in fact of much loss of its function. Antisyphilitic treatment proved the diagnosis. His conclusions were that traumatism may determine gummata, just as abrasions of the skin do the inflammatory signs of syphilis, as recent syphilitic scars show tumor-formation when cut, and as uncleanliness and the rubbing of the clothes bring about condylomata lata.

EWALD, at the Gesellschaft der Charité-Aerzte in Berlin, July 12, 1900, presented an aneurism of the arch of the aorta, which had produced a thrombosis of the vena cava superior to the lumen of a quill and thereby established a most interesting collateral venous return, especially over the thorax and abdomen in front.

REITZENSTEIN (Nürnberg) at the Mittelfränkischer Aerztetag at Fürth, June 30, 1900, rehearsed clinical observations of esophageal conditions and praised very highly the use of the esophagoscope in diagnosis and treatment. Case I.: A von Hacker gastric fistula of six months' standing was exhibited, done for cicatricial stenosis after the inbibition of acid with suicidal intent. The esophagoscope *per oram* and *per fistulam* showed several marked cicatrices. With its aid sounding was done up to 37 cm. through the stomach, and up to 21 cm. through the mouth. The subsequent treatment to be followed was external esophatomy to remove a large high-placed scar and then slow dilatation to the normal size. Case II.: Twenty-two centimeters from the teeth-line the esophagoscope revealed a piece of bone firmly impacted, measuring 3½ cm. long by 1½ cm. wide, absolutely occluding the lumen and producing pressure ulcerations. With the aid of the instrument the body was turned and extracted. Case III.: By means of the esophagoscope was visible 40 cm. from the teeth-line in a man thirty-five years of age, with a history of 2½ years' standing, a smooth patch which did not move with respiration. The esophagoscope and sounds could not be carried any farther in. On withdrawing the instrument there appeared at 37 cm. a slit-like opening, which at 35 cm. passed into another which had respiratory displacement; from here on it was possible to pass the sound into the stomach at 57 cm., a thing impossible before. The diverticulum had a capacity of 50 ccm. and the characteristic chemical condition of its contents.

MAYER (Fürth) showed a six-year-old girl who four years ago had had a forcible reduction of a congenital dislocation of the hip. The result was a slight prominence of the trochanter due probably to the shallow acetabulum and almost perfect gait.

VON RAD (Nürnberg) discussed two cases of tabes dorsalis in children. Each father had had syphilis and the mother of the second patient gave signs of cerebral syphilis. Case I.: Girl, eleven years old, spinal myosis, optic atrophy, concentric limitation of the visual field, disturbances of color sight, Westphal's and Romberg's sign, paresthesiæ, hypesthesia and hypalgesia of the legs, distinct ataxia of the upper and lower extremities, normal bladder function, ulcer-scars in the mouth, lymphadenitis. The onset dated back two years and began with distinct and rapidly increasing optic-nerve atrophy. Case II.: Boy, nine years old, onset with bladder difficulty (dysuria and incontinence), slightly different slowly reactive pupils, normal fundus of the eyes, Westphal's and Romberg's signs, no distinct ataxia, hypesthesia and hypalgesia of the legs, girdle-form hypesthetic zone about the thorax.

VON FORSTER (Nürnberg) has observed four instances of vaccine infection of the eyes of attendants upon freshly vaccinated children and attributable to the extraordinary activity of this year's virus. The pustules were located in part on the lids and the conjunctiva. The cornea escaped. Confluence occurred in one case and a purulent discharge ensued. Recovery was in each patient prompt and there were no sequelæ.

VON KRYGER (Erlangen) presented an epitomized report of the results obtained in gall-stone cases at his clinic during the last few years. Eighteen operative cases had occurred, distributed by years, two in 1894, one each in 1896 and 1898, nine in 1899, five thus far in 1900; five deaths, one each of empyema, liver abscess, peritonitis, carcinoma of the gall-bladder and cholangitis. Improved knowledge of the disease accounts for the greater number of cases within the last two years, but the diagnosis still remains fraught with great difficulties. Not always, not often even, are the pathognomonic signs of jaundice, colic, enlargement and tenderness of the gall-bladder, concretions in the feces, etc., present. Rather oftener does one find merely pain in the abdomen with vomiting, sufficient to draw attention to the stomach or intestines merely as the site of the trouble. So often does this happen that when there is abdominal trouble which cannot be definitely attached to another organ, one should always think of the gall-bladder as a very likely seat. Chief among the conditions for a differential diagnosis are gastric disorders, intestinal lesions, floating kidney, herniæ and genito-urinary affections. Direct indications for operation are enumerated: (1) Frequent brief, rapidly recurrent attacks of colic; (2) intense colic; (3) persistent jaundice; (4) colic ushered in or accompanied by fever; (5) persistent, although probably not very intense, pains in the epigastrium. The aim of the operation is to fix the site, nature and degree of the lesion and then cure it beyond the possibility of recurrence, when practicable. Often several attempts are necessary. The following must be taken under con-

sideration: (1) Primary or secondary cystotomy. The primary method appears to be more and more in favor because with it it is possible to remove the greatest number of stones. (2) Cysticotomy. (3) Choledochotomy. (4) Anastomoses. (5) Ablation of the gall-bladder, the most radical method of cure, but beset by so many dangers as to be rarely resorted to, except in extreme and carcinomatous cases. His own results have up to the present been satisfactory. Fistulæ imply no danger as a rule and heal spontaneously, although slowly. Recurrence appeared in but one case and seemed attributable to the presence of another inflammatory invasion of the gall-bladder and ducts with colic.

Juergens, at the Berliner medicinische Gesellschaft, July 18, 1900, said that in virtue of his report two years ago of having found definite organisms in the bronchi and in and about the tumors of a case of carcinoma of the lungs, he had subjected the matter to further and careful investigations. Above all other things the author denies the truth that the blastomycetes have any causal connection with cancer as set forth by foreign and promiscuous observers. In his own researches he has to the utmost avoided the colorings giving occasion for artificial products. For the search after living organisms in his experience the fresh specimen either in a thin glycerin preparation or washed in safframin is best. His best results were in the heart of an anemic carcinomatous individual where he found (1) numerous small scattered cells very like those found in the lymph-channels very early in their involvement in secondary deposits; (2) small kernel-like bacteria colonies, situated among the discrete cells, some transparent, some large, some refracting the light, on the whole closely resembling the kernels of myxomycetes; (3) organisms with ameba-like processes; (4) various cyst-like organisms, similar to the spores of myxomycetes. All occurred not only among the heart-muscle bundles, but also in the cancer-mass and among the cancer-cells. He attempts no statement as to whether these organisms possess a causal relation to the cancer, but hazards the opinion that they indicate deep-seated and severe disease of the heart-muscle substance.

Siedentopf, at the medicinische Gesellschaft at Magdeburg, May 3, 1900, brought out the following points in regard to rupture of the uterus. As to the mechanics he considers the uterine wall with the onset of normal propulsive pains to be divided into two segments, active and passive. The active segment shortens, thickens, and hardens its wall, cramps its cavity and empties itself of its contents. The passive segment receives these contents by virtue of a gradual thinning of its parieties. When this thinning process has reached a certain degree the contents of the uterus can no longer be accommodated by it, the os uteri opens, the child's presenting part passes through and is born into the vagina. Should this progress of the conception-product be hindered the balance is lost and there occurs an abnormal stretching of the passive zone which may lead to a rupture. For the closer following of the anatomical processes and of the localization of the zones the author offers the results of external and internal examinations. In one case during a Cæsarean section he was able to establish the fact that the external palpable ring, in this patient navel-high, was indeed the contraction ring and upon section of the organ showed that it corresponded with the internal ring, thus differing from Sänger who claims that the external palpable is not the contracting zone or ring. Pressure-necrosis of the uterine substance between the pelvis and the presenting part, the author holds, is not essential to the rupture, because he has seen one rupture, entirely in the cervix, due to impacted transverse position without pressure-necrosis. In this opinion he differs from Freund. A second class of cases of uterine rupture constitute those which for pathological reasons suffer unusual thinning of the uterine walls and might be said to have a predisposition to tearing. A third series of cases comprise those which on account of faulty dilation of the os uteri are subjected to bandages and pressure bringing about cervical tears which extend to the vagina and thence to the pelvic or abdominal cavities. The symptoms indicating threatened rupture are, subjectively, anxiety and continued pain on account of the tension on the uterine ligaments; objectively, the presence of a uterine contractile ring, the stretching of the round ligaments and the character of the pains. Pain ceases as a rule after the rupture and the child is partly or wholly palpable in the abdomen near the uterus or impacted partly in the pelvis. Shock and signs of hemorrhage appear later. The prognosis is dependent upon the site, completeness and incompleteness of the tear, upon lacerations of large vessels and upon later sepsis. Treatment is prophylactic. Avoidance of external pressure to hurry the delivery, recovery of the child by laparotomy when possible, suture of the complete tear, expectant drainage of the incomplete rupture and all possible means to avoid or combat sepsis.

SPECIAL ARTICLE.

DISCUSSION ON TROPICAL DISEASES[1]

At the sixty-eighth annual meeting of the British Medical Association, held at Ipswich, July 31st and August 1-3, 1900, the Section on Tropical Diseases held the following interesting discussions:

Treatment of Malaria by Quinine.—Andrew Duncan in opening this discussion said that while he could not offer many new facts on the subject, he could corroborate those already known and add some fresh evidence in contradistinction to that previously in vogue as to its value in Africa. In regard to the prophylactic action of

[1] From advance sheets by courtesy of the *British Medical Journal*.

quinine, he cited a number of investigators of different countries, most of whom found fewer attacks of malaria in those soldiers who took small doses of quinine than in those who did not take the drug. Duncan's own results in 1889 were that there were fewer cases of malaria among those companies which took 3 grains of either quinine or cinchona daily than among those who took no drugs. In 1896 50 men took 3 grains of quinine and had not a single case of fever. Of the men of the same regiment who took no drugs 6.5 per cent. had malaria. In 1897 50 men took 3 grains of quinine daily and had no malaria, while the men of the regiment who took no drug had 9.8 per cent. of malaria. In the Malay war, in the Ashanti wars and in the West Regions of Africa the quinine proved of no benefit. The results of an inquiry by Mr. Chamberlain and Dr. Patrick Manson prove without doubt that quinine does exert a prophylactic action against malaria, being efficacious in 87.7 per cent. In comparing the prophylactic action of the quinine salts with that of other drugs, it has been found that the evidence concerning arsenic is very conflicting. Some experimenters secured complete immunity by arsenic, while others, Duncan included, have gotten no positive results. With reference to the curative action of quinine, Duncan finds from notes on 367 cases that this drug comes out best of all remedies, requiring the shortest time to stop the attacks and failing least often. In 78 cases quinine required on an average 2.11 days to stop the fever. The next most successful drug was Nim Bark. Berberis, Narcotine, Kreat, Indergao are other remedies mentioned in the order of their value, but none of them equalled quinine. In most cases the quinine was administered by the mouth. In those cases in which no result occurred after several days, it was given by the rectum in 20-grain doses as well. This method nearly always resulted in a cure, and is highly recommended by Duncan. The quinine probably destroys the organism. W. J. Buchanan said that the prophylactic action of quinine and of the other preparations of cinchona, was tested in 1894 in the jails of Punjab, with such success that a similar trial of the drug was ordered the next year in all the jails of India. He had no hesitancy from his own experience in saying that the drug had the effect of certainly reducing the severity of the fever attack, although it did not prevent a large number of cases from coming into the hospital. Also that the incidence of fever was much less than among an unprotected community. He cited five experiments and their controls, all of which tend to show that the prophylactic action of quinine is marked. His experience also shows that daily doses of the drug can be administered for long periods at a time without any bad results. Dr. Robert Fielding-Ould said he had found a great diversity of opinion on the question of malaria and quinine when he was in West Africa. He discussed the action of quinine upon the blood and the amebæ. He does not agree with others as to the prophylactic action of quinine, for quinine does not *prevent* malaria, but only attacks the parasites when they are in an early stage of development. He believes that those who take quinine daily for long periods at a time, do so at the expense of their digestion, or with congestion and torpidity of the liver as a result. The best time to give quinine is when the parasites are about to sporulate, or are in their earliest stage. It may be given in a full dose of 15 grains by the mouth, or 3 grains of the hydrochloride hypodermatically. He called attention to the great value of the rectal administration of the drug. If 30 to 40 grains are injected into the rectum in a little water or mucilage of starch, after an enema, the drug is rapidly absorbed and appears in the blood in 10 or 12 minutes. Fielding-Ould thinks that a malaria patient is a standing menace to the health of the community as long as he has parasites in the blood. The drug should be given for some weeks after the fever has gone and until the microscope fails to find parasites in the blood. Dr. Patrick Manson thought that the prophylactic action of the quinine was the application of the drug to the parasite and not an immunizing of the body against the entrance of the parasite. Therefore if it will cure malarial infection it will prevent its development. David C. Rees said that when quinine is administered by injections, these should be intra-muscular and not hypodermic, and if given with antiseptic precautions no sloughs should result. He believes in taking 2 grains of quinine three times a day as a prophylactic.

Filaria Sanguinis.—A paper on the metamorphosis of the *filaria sanguinis hominis* in mosquitoes, especially in the *Anopheles Rossii* and other mosquitoes of the *anopheles* genus was read by S. P. James. He said he had found that from twelve to fourteen days are required for the metamorphosis in the *Anopheles Rossii*. He cited several interesting experiments on mosquitoes and describes the filariæ. A note on the etiology of filariasis was read by Lieut.-Colonel J. Maitland. Attention is called to the immunity of Europeans to this disease, although surely exposed to the bites of mosquitoes as much as the natives. Water may be the means whereby the filaria enter the human system, especially water obtained from shallow wells or pools. The immunity of the European in India is believed to be due to his drinking only boiled or filtered water. It is possible that the young filaria may pass from the mosquito's proboscis into the water and thence into the human system.

Hot-Weather Diarrhea of India.—Major W. J. Buchanan said that this is a very severe form of diarrhea with watery stools. It is not cholera but resembles it. The writer described the clinical picture of a case and reported several cases. As to treatment during the early stage no drugs should be given, and only such food as milk, boiled milk or prepared food, brandy or rum may be necessary. When the stools become fre-

quent and watery, the writer usually gives chlorodyne or camphoridyne, sometimes with small doses of brandy. When the diarrhea has become much less, castor oil will set the patient aright. The diet should be carefully watched. The causes are (1) bacterial and (2) predisposing. The latter are badly prepared food, bad food, improperly eaten food, overindulgence in food or alcohol, etc. The hot weather favors the production of intestinal fermentation and putrefaction. The disease must be differentiated in India from cholera. The diarrhea is not so fatal as cholera, and cramps are seldom present in the diarrhea.

Ankylostomiasis.—Major Y. M. Giles gave the history of this parasite up to 1889, and stated that of the many new points which he was able to bring out by his own investigations, by far the most important was the demonstration of the fact that the full life history of ankylostoma duodenale is an example of dimorphism or heterogenesis. He explained his experiments in detail, and gave a description of the parasite. The rhabdites have never been found by him in drinking, or in any natural collection of water. They were found in great numbers in the fouled soil around villages and hence he thinks that they are carried to food by soiled hands and that that is the commonest method of infection. Prolonged exposure to the direct rays of the sun kills the free stage worms, and burying the embryos also destroys them. They easily succumb to ordinary disinfectants. The writer believes that this parasite is responsible for a formidable mortality and a great amount of chronic illness.

Capt. C. F. Fearnside gave some interesting statistics as to the presence of this parasite in a large number of convicts. He also showed the effect on these entozoa of better hygiene and cleaner food. His figures tend to show that the effects of the ankylostoma are for the most part secondary and not primary. Dr. Leonard Rogers presented a long paper on the great differences of opinion regarding this disease, the sources of fallacy, the definition and classification of ankylostomiasis, its differential diagnosis and the types of anemia in ankylostomiasis and malaria. Oswald Barker said that he thinks that much of the mortality of Burmah, set down to unknown causes, to anemia and general debility, is due unquestionably to ankylostomiasis. He agrees with Major G. M. Giles that the commonest mode of infection is through the medium of contaminated food, and that water has little to do with the matter.

Tropical Liver Abscess.—Colonel Kenneth MacLeod said that spontaneous evacuation of abscess of the liver takes place most commonly by the pulmonary route. He discussed the physical signs produced by a primary discharge into the pleural cavity, and said that the cavity must be drained. He contends that in old standing cases of lung lesion consequent on hepatic abscess, the pathological burden has been transferred from the abdomen to the chest; and that the lung must be treated according to the special indications of the case, and the liver left to take care of itself.

Subhepatic Abscess.—James Cantlie considers this term to mean a collection of pus on the under surface of the liver, between the liver and its capsule, beginning most probably in the lymphatics. He divides abscesses of the liver into three kinds: (1) Intrahepatic abscesses, mostly of dysenteric origin; (2) suprarenalhepatic abscesses situated between the layers of the broad ligament of the liver, commencing as a lymphangitis; (3) sub- or infra-hepatic abscesses, in which pus lies between the liver substance and the capsule, commencing probably as a lymphangitis. He said that it is possible that the lymphangitis may be due sometimes to the results of filarial infection, as empty sheaths of filaria nocturna were found by him in one case of suprahepatic abscess. He was unable to state the reason why the pus selected this region. The few cases he had seen were in persons who had resided in tropical countries. The local signs and symptoms were a tumor in the epigastrium to the left of the gall-bladder and behind the right rectus muscle, perihepatitis with friction sounds showing an increased area from day to day, hepatitis was not marked, nor was the area of liver dulness much, if at all, increased. The general symptoms are some temperature, occasional rigors, generally paresis of the intestine, or loose bile-stained stools and disturbance of the circulation and of the thoracic movements usual in inflammatory changes in this region. The diagnosis of subhepatic abscess is sometimes difficult. Cantlie has found the prognosis good in the cases he has seen. The treatment consists of tapping with a large trocar and drainage with a tube, or incision when there are adhesions. Wm. J. Smith thinks that surgical interference is necessary both for therapeutical purposes, and also in a large proportion of cases to obtain a precise diagnosis. The diagnosis from symptoms presented is difficult. The exploratory puncture and the exploratory laparotomy are two surgical procedures in the radical treatment. Smith prefers the exploratory puncture, as it succeeds and is followed by no bad results. He uses a needle from 3 to 6 inches in length and a syringe with a capacity of 60 to 120 minims. When pus is demonstrated by the needle after 2 or 3 punctures an incision such as will permit the free discharge of the fluid and drainage should be made immediately. The only cases in which he would refrain from operating excluding those in which the patient is much exhausted and almost moribund, would be cases in which there had undoubtedly been a spontaneous rupture of the abscess into the right pleural cavity.

Amebic Causation of Abscess.—As all abscesses of the liver are of great interest Staff-Surgeon P. W. Bassett-Smith reported a case which occurred in England in a man who had not been abroad for two years. The hepatic abscess followed an attack of dysentery, and amebæ were abundantly found in the abscess fluid to the

complete exclusion of pyogenic bacteria. After death recent shallow (probably amebic) ulcers were found in the cecum. The abscess was in the left lobe of the liver. There was an abscess in the right lung which did not directly communicate with that of the liver. The lung was infected without perforation of the serous membrane. There was pericarditis. *Amoeba coli* was found in the abscess fluid two days after the operation, and the pus was sterile. It is probable that the dysentery was directly due to the ameba and that these were conveyed to the liver.

Improvement of Sanitary and Medical Practice in Tropics.—In this paper Ronald Ross called attention to some improvements in medical organization in the tropics which are much needed. He would have special instruction in animal parasitology and in tropical medicine given to all newcomers, and would have the facilities for obtaining literature on tropical medicine increased. Microscopes and other apparatus ought to be supplied the hospitals. There should be better municipal regulations, and original research should be stimulated.

Blackwater Fever.—Dr. George Thin reported a case of this disease and described his findings in sections of the spleen, liver, bone marrow, and kidney. He is satisfied that the patient died of acute malarial fever in which the hemoglobinuria was a concomitant symptom only. Dr. Patrick Manson said that while it may be quite true that hemoglobinuric fever is an expression of malarial infection, he would not decide that it was so merely because the malarial parasite was discovered in a hemoglobinuric's blood.

Cyprus Sphalangi and Anthrax.—George A. Williamson described this insect, which is about the size of an ant, and gave a complete identification of it. The *sphalangi* is met with only during hot weather. Its body is covered with fine hairs which may be the means whereby it carries infection to abraded surfaces. It prefers foul material as food. In early summer winged individuals are met with. The females can and do sting, but the sting in itself is not supposed to be especially poisonous. In Cyprus the sphalangi bite is considered serious, and possibly fatal. Anthrax is common on the island and the carcasses of sheep dying from it are left too often lying where they died. Williamson reported in detail several cases of "sphalangi bite" in which he found large numbers of undoubted anthrax bacilli in the discharge. In all these cases there was a history of a sheep having died of anthrax in the immediate neighborhood a few days before the patient was bitten. He also noted several cases of sphalangi bites in which there was no infection other than one would expect from the simple bite of the insect. Therefore all bites of the sphalangi are not poisonous, only those which carry the anthrax bacilli upon their sting or on the hairs on their body.

Yaws.—Jonathan Hutchinson opened a discussion on yaws, and presented a young man who he believed was the subject of the disease. The patient presented a number of scars and pigment-stained patches, chiefly on his lower extremities. Hutchinson believes that yaws is syphilis modified by race and climate, and that yaws protects from syphilis and vice versa. Dr. Patrick Manson said he did not believe that inoculation by yaws will protect against syphilis nor vice versa.

SOCIETY PROCEEDINGS.

THIRTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

Held at Paris, August 2-9, 1900.

(Continued from page 397.)

SECTION ON DERMATOLOGY AND SYPHILOGRAPHY.

Eczema and Its Parasites.—Dr. P. G. Unna of Hamburg thought that much of the difficulty in the diagnosis and proper understanding of this affection was due to the absence of any proper classification of the bacterial organisms. He believes that the disease is due to a micrococcus and that a more persistent study of the staining properties of the various associated micrococci would result in the unraveling of the question. Dr. James Gallaway of London spoke of the uncertainties of diagnosis from a clinical standpoint and also of the need that existed for more strictly scientific descriptions of the many lesions usually spoken of as eczematous. In working with one particular type of disease, acute papulo-vesicular eczema, he has obtained, by working on four cases, a coccus which was found in all. These cocci were pathogenic for mice and were closely allied in their cultural characteristics. He concludes that cocci which produce white colonies are found in early and uncomplicated cases of papulo-vesicular eczema, but they cannot be differentiated from staphylococcus pyogenes albus. Later stages of the disease frequently gave the aureus. Dr. Unna's coccus, he believed, was in the former group. Other important factors should be considered. The predisposition of the skin, usually associated with seborrhea, as well as disturbed bodily metabolism were factors not to be ignored. Dr. Jadassohn of Berne thought that the micro-organisms so constantly found were not pathogenic; their presence was accidental. Their development later undoubtedly gave rise to many secondary lesions in the affected areas. Drs. Brocq and Veillon of Paris concurred in that they did not believe that any specific bacterium had been found for the disease; the principal lesion of eczema, the vesicle, was usually sterile and that the complicated later picture of eczema was induced by the secondary infection of the different cocci described by numerous authors as the causative factor of the initial lesion.

Tuberculides.—Dr. Boeck of Christiania called

attention to the peculiar character of a number of cutaneous affections occurring in tuberculous patients. These were probably due to the effects of the toxin of the bacillus tuberculosis acting on the vasomotor nerves. The bacillus itself was almost uniformly absent. The affections were marked by their symmetrical development, in marked contrast therefore to the asymmetry of affections due to the growth of the bacillus itself. Dr. Campana of Rome spoke of the resistance of the skin to the inroads of the bacillus and its ready involvement by the toxins of this organism. He accounted for this on the ground that the bacillus tuberculosis was a better aerobe than anaerobe and that while the structure of the skin had little to do with the problem, its lack of oxygen had. To distinguish clinically, however, between the lesions of the bacterium and those of its toxin was a very difficult matter. Dr. Darier of Paris enumerated some of the clinical features of the tuberculides. They were symmetrical in their development; were always associated with patients infected with Koch's bacillus; they usually appeared suddenly without any rise in temperature; they were usually of a reddish-purple or livid tinge, and might be found in almost any portion of the body. Moreover, they were tender to the touch, although not painful and were liable to be found under various guises and capable of many modifications in their developmental history. In order to account for them three hypotheses have been given, in the last of which Dr. Darier was inclined to believe. (1) Unknown micro-organisms living in a soil first prepared by the development of the tubercle bacillus produced them. (2) They were brought about by the action of the toxin of the tubercle bacillus. (3) They were the results of multiple emboli of the tubercle bacilli.

Syphilis.—Dr. Bulkeley of New York spoke of syphilis associated with other infections. Thus far the conditions were little studied and he advocated a more careful inquiry into the effects that followed from coincident infections when the second disease was local as well as general.

Dr. Ducrey of Pisa divided these combinations into three classes. Those in which the second infection was purely local and gave no general symptoms; those in which the second infection was usually local, but might give rise to general infection, gonorrhea, for instance, and finally those in which the second disease was general, such as leprosy or the infectious fevers. With purely local conditions he believed that they increased the gravity of the specific lesion. Thus when the soft sore is associated with the hard chancre, suppuration and gangrene are much more liable to occur. The infectious fungus diseases were thought to flourish better on a syphilitic soil. As far as gonorrhea was concerned he did not believe that there was any particular effect one way or another, save perhaps on the occurrence of a gonorrheal epididymitis which predisposed the organ to syphilitic invasion. In the eruptive fevers, the coincidence of syphilis and measles and scarlet fever seemed to result in a heavy mortality. This might have resulted from the bad hygiene rather than the syphilis. Ducrey believes that typhoid fever destroys the syphilitic virus to an appreciable extent. Erysipelas seems to have somewhat of the same effect. Puerperal septicemias are badly affected by syphilis, as are also the association of syphilis and tuberculosis and syphilis and malaria. Syphilis and leprosy seem to have no interaction, the one on the other.

Dr. Hallopeau of Paris believed that it would be wise to limit the term "associated diseases" to those in which a modification was brought about by the action of the syphilitic virus. He believed in hybrid forms of disease produced by such interactions. Such could be brought about by the soft chancre, tubercle bacillus, rarely, and epithelioma.

Syphilis and Heredity.—Dr. B. Tarnowsky of St. Petersburg traced the histories of 25 syphilitic families to the fourth generation. He concludes that (1) the second generation suffers the most from the effects of hereditary syphilis; miscarriages, stillbirths, early deaths and general malnutrition were the chief effects induced; (2) the third generation suffers, but in a markedly diminished degree; (3) immunity to the syphilitic virus is not transmitted to the third generation and the diseases recognized as due to congenital syphilis are not present; (4) syphilis of father or mother acquired at the time of conception or during pregnancy is not transmitted as hereditary syphilis to the offspring; (5) the skipping of one generation was not observed; (6) if the children of syphilitic parents do not show signs of congenital syphilis they have perfectly healthy offspring; (7) hereditary syphilis of the third generation is as a rule reinforced by a second infection in the second generation; (8) such a double infection makes more havoc with the third generation than does the primary trouble with the second; (9) to this "binary" syphilis is to be ascribed the baneful degenerative effects seen in endemic syphilis; (10) the effects of the syphilitic virus run out entirely in the fourth generation. Dr. E. Fenger of Vienna does not think that enough attention has been given to the question of reinfection in the second generation in attempting to analyze the occurrence of the disease in the third. Most, if not all, cases which show third-generation invasion will be found to have had second-generation reinfection. Syphilis seemed to exert its greatest force in limiting the number of progeny rather than decreasing their resistance and thus carried out the natural survival law. With reference to the question of immunity among syphilitics he believed that it was much less than had been supposed. Its comparative mildness in endemic localities and great virulence on virgin soil were facts not to be gainsaid, but they did not necessarily prove the fact of acquired immunity.